

# COAL AGE

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## Shotfirers and the Alien Enemy Miner

RECENTLY, sticks of dynamite have been found mixed with coal in several coal cars. Investigation has shown that the explosives were placed in the cars at the mines, and certain Austrian miners are suspected of having committed this crime in an attempt to wreck coal transportation.

Perhaps these acts of vandalism were not perpetrated primarily to aid the enemy. Instances are on record where such things have happened accidentally. Then there are cases where revenge has been the sole motive. Nevertheless, such acts may not only interrupt railway transportation, but may result in an explosion that will wreck a building or sink a transport.

Crimes of this kind may be largely prevented through the compulsory requirement of shotfirers in all mines. Safety engineers and mine inspectors have frequently advocated such a measure. Some states already require duly authorized shotfirers; other states require shotfirers under certain conditions. In gaseous mines particularly, the hazards from improper loading, tamping and firing are great. However, the mining industry is not unanimous in the belief that specially appointed shotfirers are necessary as a safety measure in all mines under all conditions.

IN ADDITION to the increased safety that results from having all holes fired by specially appointed men, there is now the further incentive to comply with the Explosives Regulation Act—a law designed to prevent explosives getting into the hands of alien enemies. This act requires the licensing of all users of explosives; yet, as at present enforced, practically all miners can get explosives and the law furnishes but little protection.

The inclusion of high explosives in cars of

coal today makes it advisable that the coal industry as a whole seriously considers the adoption of some compulsory shotfiring measure. Mine operators have here an opportunity to cooperate with the Government for the protection of its war-making efforts, as well as for the protection of life and property. Careful discussion will determine whether it is best for the state mining department to exercise power to make such requirements compulsory; or whether it is necessary for state legislators to enact additional legislation; or whether Government officials acting under authority of the Federal explosives regulation should correct the evil.

ONE thing is certain—this is not a time for halfway measures. Such as the appointment of shotfirers who merely ignite shots loaded by miners. No plan can prove really effective unless it embodies the designation of specially qualified individuals, who will have sole charge of the custody, storage, transportation, loading, tamping and firing of all explosives. In small mines it is not necessary to appoint some man who has no other duties than shotfiring. In these small operations a reliable company man, the foreman or the superintendent, can perform such duties.

With the universal adoption of shotfirers there will come a material reduction in the accident ratio in coal mines. Fewer men will be injured through the careless handling of explosives and by flying particles of coal. There will also be a reduction in the number of those greater catastrophes caused by blownout shots, and finally such action will eliminate the serious dangers that arise from explosives being mixed with shipments of coal.

This matter is worth discussing right now, and *Coal Age* will appreciate an expression of opinion from the industry at large.

## IDEAS AND SUGGESTIONS

### Storage-Battery Charging Panel

BY FRANK HUSKINSON  
Lafayette, Colo.

Having a number of small portable storage batteries, also a few storage batteries used in automobile lighting and starting, to keep in shape and charged, I made up the satisfactory and serviceable charging panel shown in Figs. 1 and 2.

Fig. 1 shows a front view of the panel. A is a Weston direct-current, 15-amp., back-connected, small-size switchboard ammeter. V is a Weston direct-current 15-volt, back-connected, small-size switchboard voltmeter. The direct current for charging is taken from the direct-current busbars behind the circuit breakers, at the substation, so as to have an uninterrupted source of current for the charging of the batteries.

The direct-current lines come to the fuses, and a 30-amp., double-pole, single-throw switch. One line then goes to the ammeter and thence to the batteries. The other line goes to one side of all the lamp receptacles, the two 15-amp., single-pole, single-throw switches are each connected to one-half of the lamp receptacles, and then to the batteries. This arrangement allows each switch to connect one-half of the lamps in series with the ammeter and the batteries. For a finer adjustment of the load, the lamps can be turned on or off in the receptacles.

The voltmeter is arranged with two sets of terminals; the upper set is for connecting a portable cord and testing the voltage on any desired batteries. The lower

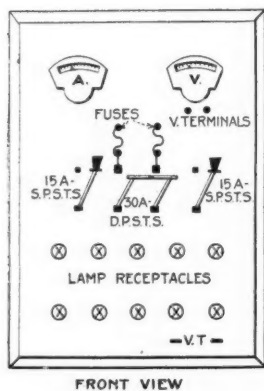


FIG. 1

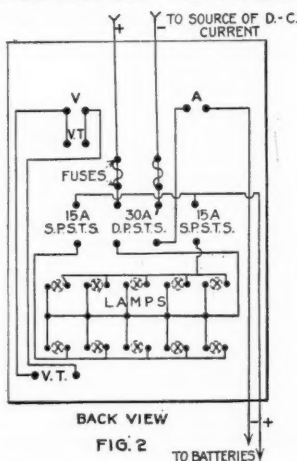


FIG. 2

FIGS. 1 AND 2. FRONT AND REAR OF CHARGING PANEL

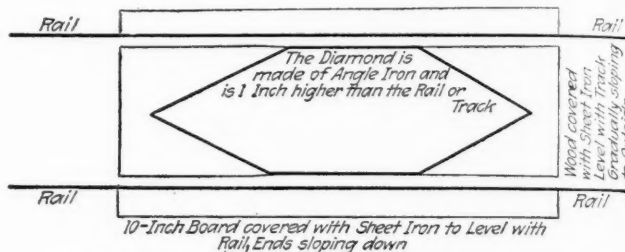
set of terminals, marked VT, are two pieces of strip copper fixed to the panel board, and so spaced that in testing the small size portable storage batteries, the battery terminals are brought in contact with the two copper pieces and the voltage then read on the voltmeter.

The size of lamps to be used in the receptacles is determined by the amount of current needed and the number of batteries on charge. The lamps can be replaced with resistance units if desired.

### The Diamond Rerailer

BY JOHN HITTMEIER  
Mt. Olive, Ill.

A rerailer that has been in actual service for a year and is still in good order is shown in the accompanying illustration. This is placed permanently between the



CARS QUICKLY RERAILED WITH THIS DEVICE

rails at any point where pit cars get off the track along the motor haulage. If cars become derailed while moving in either direction, or on either side of the track, they will rerail or get on the track without lifting or even stopping the trip.

### Generator Polarity Reversed

BY JOHN J. NOLAN  
Linton, Ind.

Some few months ago the electrician at one of the Vandalia mines reported to me that the arc lamps used for headlights on a certain locomotive could not be made to give sufficient light compared to lamps used on other locomotives in this mine.

After discussing the various causes of this difficulty, he stated that on idle days the lamps burned brightly; so I investigated and found that the generator supplying this side of the mine was reversed, making the rail the positive side of the circuit.

The two generators were not connected in parallel, but had separate positive lines supplying their respective sides of the mine. The two locomotives, however, came in to the bottom over the same rails. Also the machines on both sides of the mine fed off the trolley and used the rail for a return. The reason for having better light on idle days was that the generator which was not reversed supplied the whole mine on these days.

The reversal was not caused by either of these two generators, but by another plant supplying the machines and gathering locomotives from a water shaft about a mile away, and a switch so arranged that this plant could furnish power at nights for pumps, motors, fans, etc., over the whole mine. This switch had probably been put in before the main plant had been cut out.

This occurrence might seem strange, but the same thing happened twice afterward; and each time this same generator had been reversed and the arc lamps would indicate the trouble.

A Plea for Conservation

By E. H. COXE

General Superintendent, United Coal Corporation,  
Pittsburgh, Penn.

In visiting our mines, I have noticed a lamentable lack of interest in, and compliance with, the numerous orders and requests of the various Government administrators, looking toward the conservation of articles essential to the winning of the war. I cannot think that our men are less patriotic or thoughtful than others, and am led to believe that this condition prevails generally throughout the coal fields of the country.

I notice a lack of observance of meatless and wheatless days; carelessness in allowing lights to burn unnecessarily in the day time, and the use of an excessive number of lights at all times where they are furnished free or on a flat rate.

On mentioning this lack of observance of these rules or orders, the reply in some cases was, in effect, "What difference will the little I can save make?" If each individual will consider that there are 100,000,000 people in this country, and if his saving is multiplied by that number, he will readily see that the total saving would be considerable. If every person figured that his or her individual saving was not enough to count, there would be no conservation and we would have no more show to win the war than has the oft-mentioned snowball in Hades.

Another thing I have noticed is the amount of good coal going over the slate dump. In cleaning roads and falls, a large amount of coal is loaded in slate cars that could be separated and saved, instead of being wasted on the dump.

The failure to recover spikes and ties, now expensive and hard to get; the careless tearing up or repairing of tracks; the throwing of scrap in the gob instead of on the scrap pile; the haphazard handling of small supplies; the lack of care of tools and machinery; all these cause loss to our employers and waste of material which could be used in making ammunition for use at the front.

As has often been said, the winning of the war depends just as much on the men behind the men behind the guns, as on the men behind the guns, so it is up to us here at home to economize. Let not people of other occupations point to us at the mines as slackers, but let us all put our shoulders to the wheel and practice conservation and economy in those things and materials necessary for victory.

Guide for Use with Traverse Tables

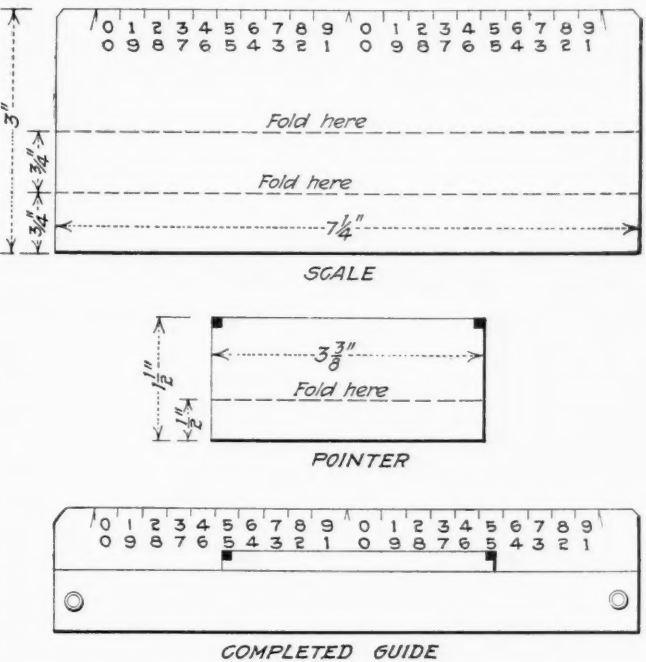
By PHILIP A. ARNOLD

St. Marys, Penn.

In taking figures from traverse tables, a guide of some sort is almost a necessity if one wishes to avoid mistakes. Many are the devices used for this work, from the slip of paper with two pencil marks the proper distance apart to elaborate arrangements with dials and arrow points. I have worked with a number of different styles of guides, but the one that has given me best results and that I have used for some time is shown in the accompanying illustration. This guide is simple to make and can be operated with quickness and ease.

To construct, take a piece of medium weight drawing

paper and cut a scale and pointer to the dimensions shown. Make graduations on scale to correspond with the vertical ruling on pages of the traverse book and place two rows of numbers as shown—the upper row being used for angles up to 45 deg. and the lower row for angles from 45 to 90 deg. Fold the scale and pointer on the indicated lines and place the flap of the pointer under the flap of the scale; then fasten an eyelet close to each end of the scale. The guide is



SIMPLY MADE GUIDE TO ENABLE CORRECT READING OF TRAVERSE TABLES

now ready for use, as the pointer is securely held in place but can easily be moved along the scale to the desired point.

The guide shown in the accompanying illustration is constructed for use with "Gurden's Traverse Tables"—four decimal places. In order to make a guide for use with other tables it is, of course, only necessary to change the length and graduations of the scale and the length of the pointer to correspond with the columns of the book.

To Compute the Area of a Circle

B. B. Gordon, of Greenville, Mass., in the *Engineering News-Record* gives the following method for calculating the area of a circle. The general rule is to multiply the square of the diameter by 0.7854, but engineers usually rather hesitate to make the calculation in that manner. Mr. Gordon's method, which he says may not be new, substitutes a somewhat easy series of multiples which calculated can be added together. For the purpose of this example the diameter is taken as 4. Then

	If D = 4	D <sup>2</sup> = 16
		0.7
D <sup>2</sup> Multiplied by 0.7 =	11.2	
D <sup>2</sup> Multiplied by 0.07 =	1.12	
D <sup>2</sup> Multiplied by 0.014 or (0.007 × 2) =	0.224	
D <sup>2</sup> Multiplied by 0.0014 =	0.0224	
D <sup>2</sup> Multiplied by 0.7854 =	12.5664	



# Modern Rectangular Coke-Oven Plant

By DEVER C. ASHMEAD

Tarrytown, N. Y.

**SYNOPSIS**—*With scarcity of labor coke men turn to improved types of ovens susceptible of operation by mechanical appliances. A thoroughly modern rectangular coke-oven plant is here described, with details of the mechanical coal leveler, the coke quencher and the coke loader. The construction of this new type of oven is fully covered and illustrated. An interesting comparison is made of the labor necessary to operate the 200 rectangular ovens and the same number of beehive ovens at this plant.*

**A**T SYKESVILLE, Clearfield County, Pennsylvania, the Cascade Coal and Coke Co. has a plant of 400 coke ovens, 200 of which are rectangular, the other 200 being of the beehive type. These ovens are supplied with coal from the Cascade mine, which is owned and operated by the same company. The coke ovens and most of the surface plant are shown in the general panoramic view, Fig. 1.

The whole surface plant is in every way thoroughly modern, up to date, and comparatively new, part of it having been installed in the last three years. The recent construction includes the new boiler house and the low-pressure turbine building; the rectangular coke ovens were completed about five years ago, the rest of the plant being older.

There are two separate boiler houses for the production of steam. One is shown at the right in Fig. 2 and contains four 300-hp. Babcock & Wilcox boilers. The second boiler house is shown in the foreground of Fig. 3; it occupies the right half of the building and contains two 300-hp. Babcock & Wilcox boilers. Both of these boiler houses are fireproof, being built of brick and steel. A 150-ft. brick chimney is provided for each set of boilers.

There are two engine houses; one is in the right-hand end of the building shown in Fig. 2, at the right of the illustration. This engine house contains the hoisting en-

gine which raises the coal from the mine, 183 ft. below the surface; also it contains four two-stage Ingersoll-Rand compressors, which furnish compressed air for the punchers that undercut the coal in the mine.

The exterior of the second engine room is shown in Fig. 3, at the left-hand end of the building, in the foreground. This engine room contains two thoroughly modern, low-pressure Ridgway-Rateau-Smoother turbo-generator outfits, built by the Ridgway Dynamo Co. These outfits are 375 kv.-a., 94.3-ampere, 2300-volt, 60-cycle, three-phase units. The steam used in the two turbines is the exhaust from the air compressors, the hoisting engine and other small engines. As the pressure of this steam is quite variable, it is sent through a Rateau regenerator, which equalizes the pressure before the steam goes to the turbines. The capacity of the regenerator is such that it will hold sufficient steam to run the turbines for 2 min. after the plant is shut down. It is also arranged that steam, from the boiler plant in the same building, can be supplied to the regenerator for the operation of the turbines in case there is not sufficient exhaust steam to operate them. The interior of this low pressure turbo-generator room is shown in Fig. 4. In the immediate foreground can be seen the top of the condenser.

The headhouse (center of Fig. 2) is built of steel and is covered with corrugated sheet iron painted black. The cages are self-dumping and the coal goes directly into a weigh basket. As the coal seam in the Cascade mine is particularly free from impurities, it is unnecessary to give the coal a careful cleaning. Therefore, from the weigh basket the coal is dumped into a 60-ton bin, whence it is carried by a 42-in. belt conveyor into another part of the headhouse where the coal is broken to 1-in. size in a Link-Belt crusher. Afterward it goes by chute to a Williams crusher, operating at 1800 r.p.m., in which the coal is crushed to pea and smaller; thence to a pit from which it is picked up by 24-in. rubber belt conveyors, 250 ft. center to center, and taken to the two large 1000-ton coal bins, shown at the left in Fig. 2. The frame of the bins is of steel; the bin proper is lined

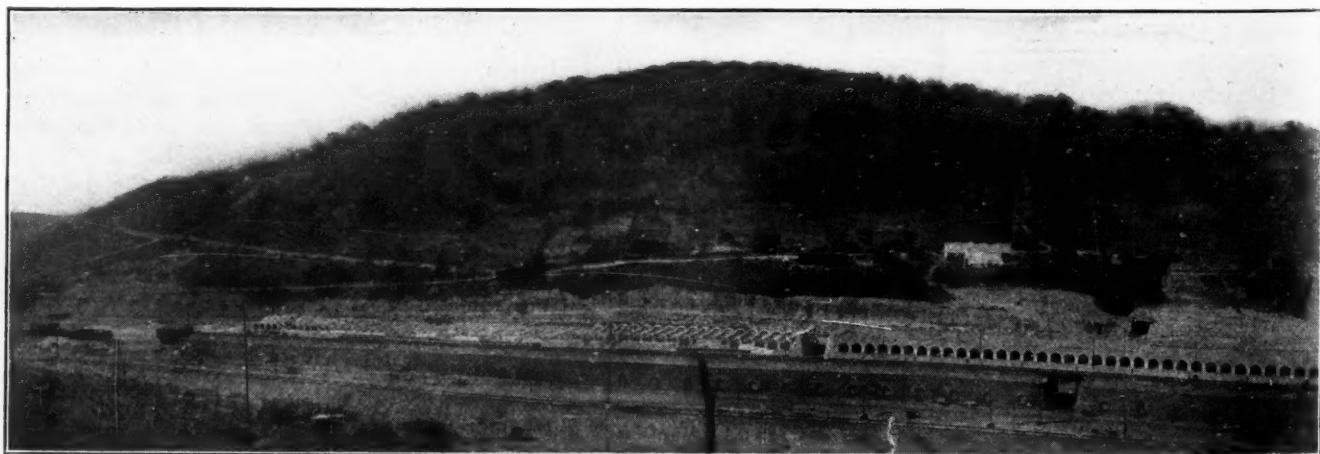


FIG. 1. PANORAMIC VIEW OF COKE OVEN PLANT OF THE CASCADE



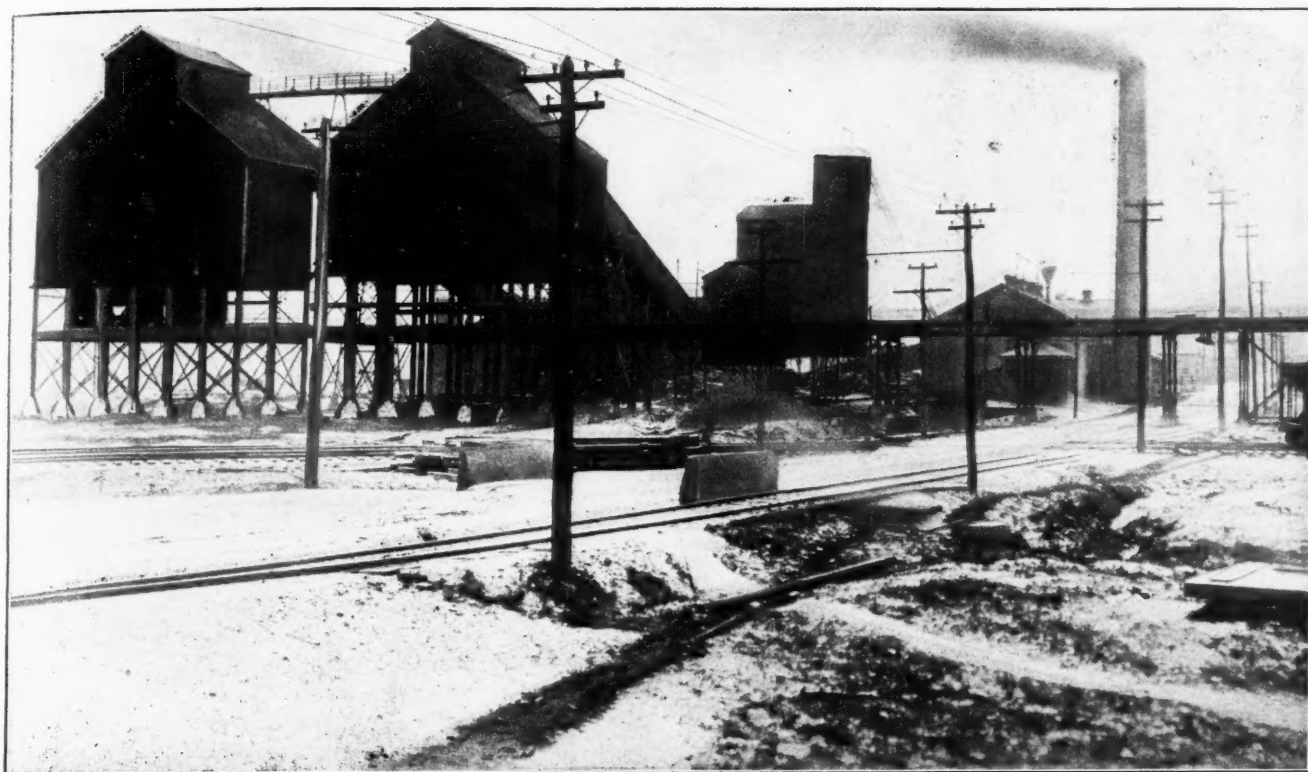


FIG. 2. VIEW OF PLANT SHOWING BOILER AND POWER HOUSE, HEADHOUSE, STORAGE BINS AND LARRY TRACK

with wood, which is covered with sheet steel. Coal is loaded direct from the bins into larries, from which the ovens are charged.

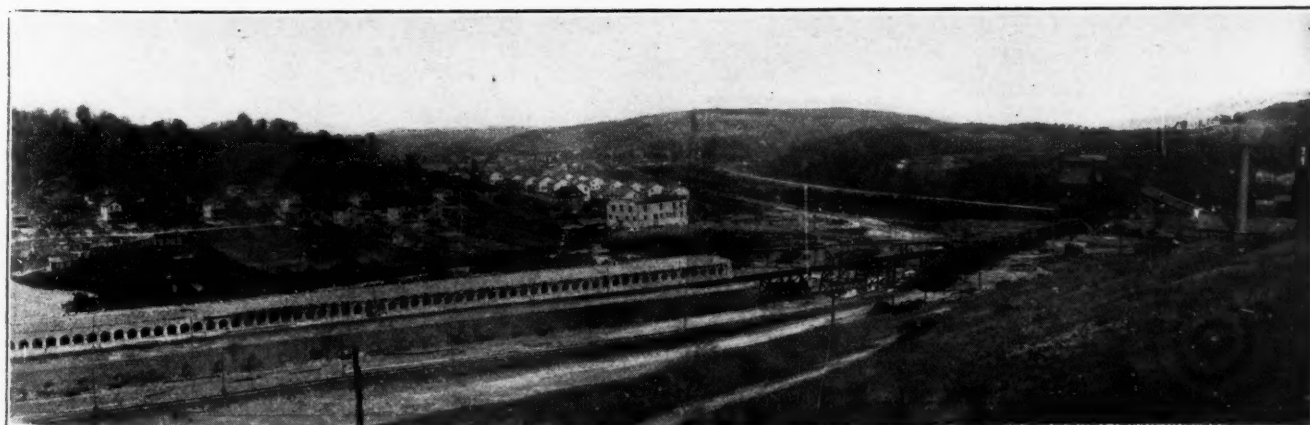
The oven layout is shown in the panoramic view (Fig. 1); each of the three parallel rows of ovens is approximately 1600 ft. long. The single bank of beehive ovens is in the foreground; in the middle are the block, or double row of beehive ovens; and immediately in the rear are the rectangular ovens, which were under construction at the time the picture was taken. The larry tracks from the bins to these three rows of ovens are plainly shown in Fig. 1.

Coke is loaded from the ovens into cars on tracks located between the rows of ovens. The grades of the railroad tracks favor the loaded cars, which are dropped in the direction of the bins and headhouse, where they are made up into trains.

The rectangular coke ovens are a particularly interesting feature of this plant and are well illustrated in

the accompanying views. These ovens are  $5\frac{1}{2}$  ft. wide by 32 ft. deep and have the charging hole in the center of the top (see Fig. 12). This charging hole is also the vent for the escape of gas. The general construction of the oven is well shown in Figs. 6, 10, 11 and 12. Fig. 11 shows the details of construction of the front of the oven as well as the interior wall. The front of the oven is built of cut stone and the interior side walls as well as the top and bottom are of firebrick. The top of the oven rises from each end to the center and is arched as shown. The form for constructing the top of the oven is illustrated in Fig. 9 and it is shown in place in Fig. 6. The firebrick on the sides has given only a very short life, not over two years. The top of the ovens has lasted fairly well. In fact, during the five years they have been operating they have not yet burned out.

While the ovens were under construction, the portable roadway, shown in Fig. 10, was built so that the teams could readily deliver the earth for covering the ovens.



COAL AND COKE CO., SYKESVILLE, CLEARFIELD COUNTY, PENNSYLVANIA



FIG. 3. EXTERIOR VIEW OF POWER PLANT

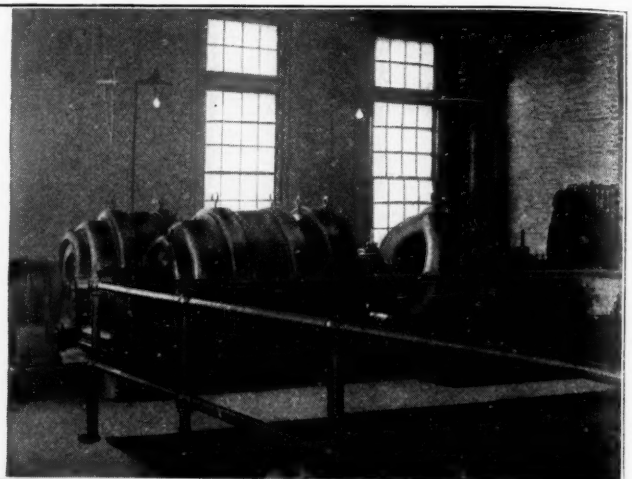


FIG. 4. INTERIOR OF TURBO-GENERATOR ROOM

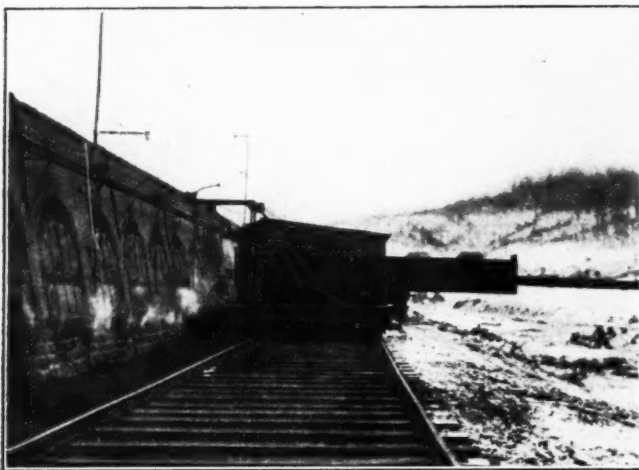


FIG. 5. LEVELER FOLLOWED BY DAUBING CAR

This saved considerable extra handling, facilitating the delivery of the material at the proper point.

The coal bins are connected to the coke ovens by a steel trestle about 500 ft. long, on which the larries run. Fig. 8 shows the larries as well as the steel construction of the trestle. The plate girders in this illustration are over the trolley tracks on the county road below. The larries are run in batteries of three, with one motorman in charge, and are so arranged that they will charge every other oven.

The larries have a maximum capacity of 10 tons each, but they only carry the amount of coal that is necessary to charge an oven. This amount depends on the time the ovens are to burn. At this plant they are using two burning periods of 48 and 72 hours respectively. As mainly furnace or 48-hour coke is made at this plant, when it is desired to use the longer burning time (72

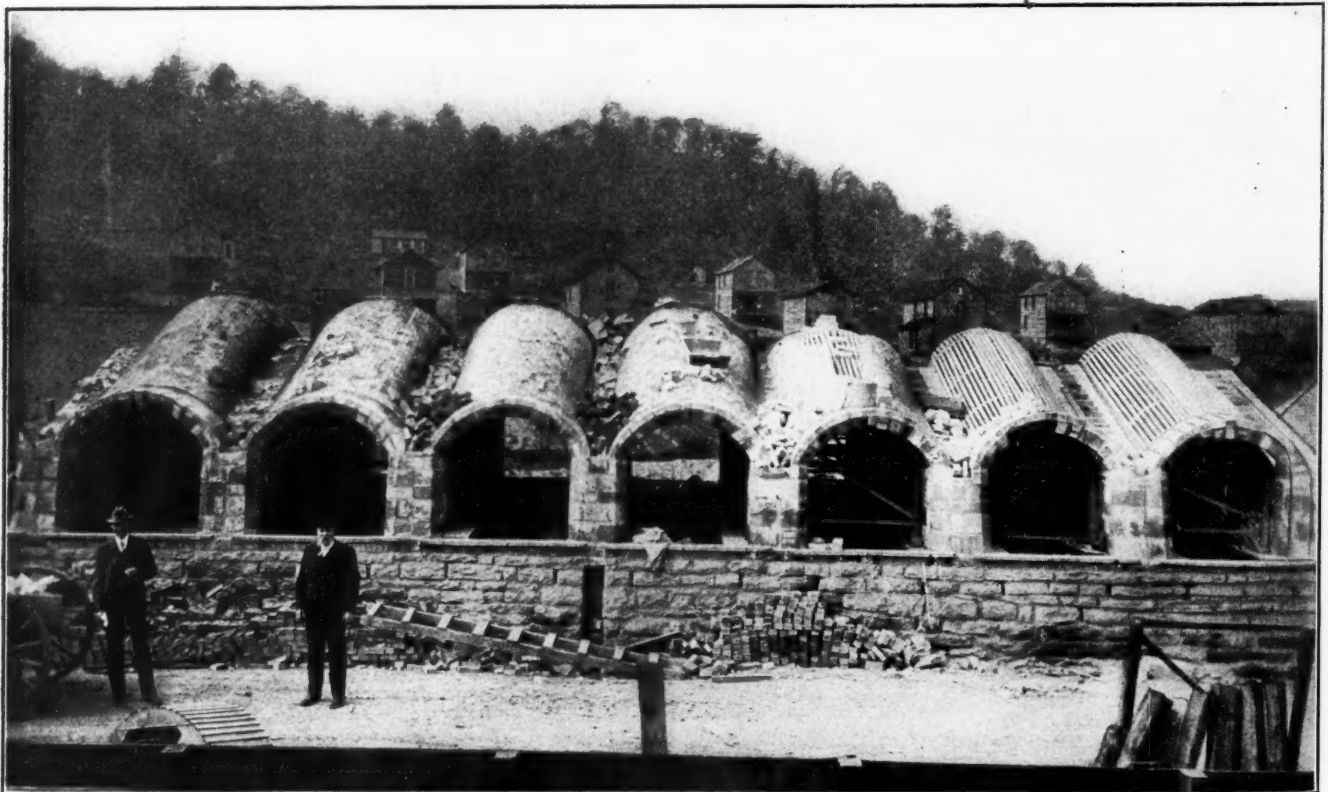


FIG. 6. VIEW OF THE OVEN DURING PROCESS OF CONSTRUCTION



hours), it is necessary to use a larger charge—therefore, the two size charges, one of 7 tons for the 48-hour period and one of 10 tons for the 72-hour period. As previously mentioned, the larries are so arranged that three ovens can be charged at the same time.

When the coal from the larries is charged into the ovens, it forms a pile in the center and it is necessary to level the coal evenly in the oven. Fig. 5 is an illustration of the leveler. The machine runs under its own power on the track shown. When it is necessary to level the coal, the leveler is run directly in front of the oven,

and the lower part of the doors on each end of the coke ovens are swung into place (see Fig. 14). The leveler is provided with a long arm with a scraper on the end that has an over-all reach of 35 ft., which is operated by an electric motor, moving the arm backward and forward. One man operates the leveler, which was manufactured by the Connellsville Manufacturing and Machine Supply Company.

Immediately following the leveler is the daubing car, shown in Fig. 7. This car moves on the same track as the leveler, and is also propelled by its own motor.

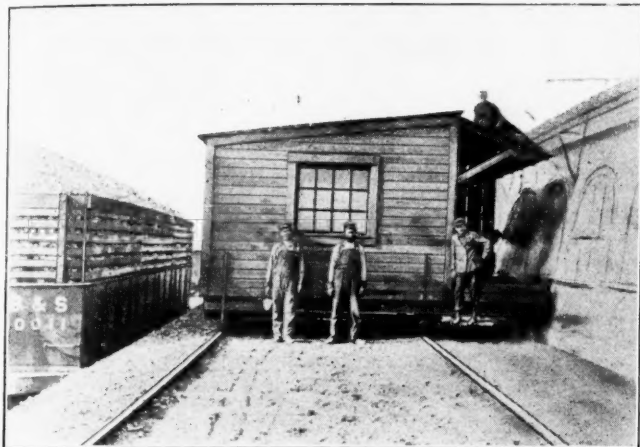
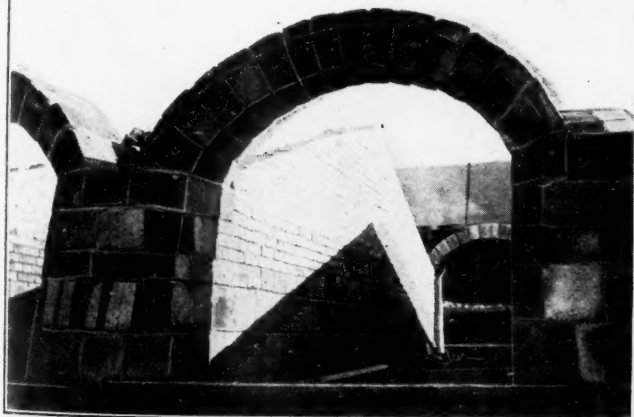
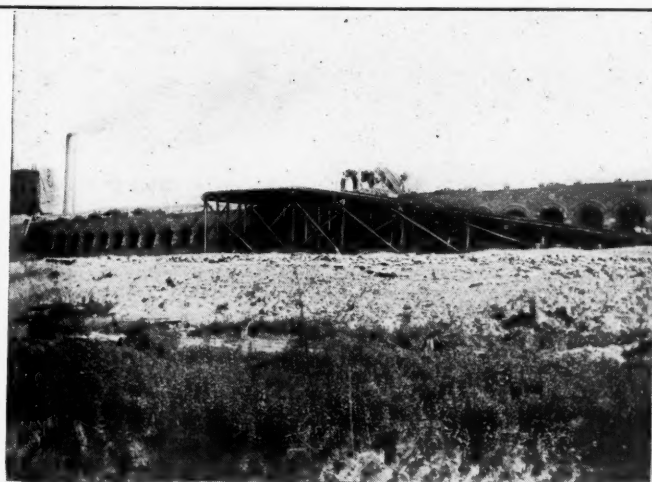
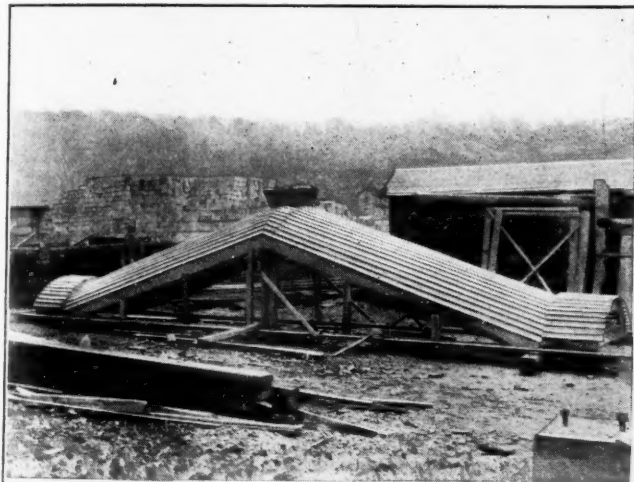


FIG. 7. VIEW OF THE DAUBING CAR



FIG. 8. TRAIN OF LARRIES ON WAY TO OVEN



FIGS. 9, 10, 11 AND 12. GENERAL VIEWS OF THE OVENS DURING CONSTRUCTION

Upper Left—Form for constructing top of oven. Upper Right—Knockdown roadway for taking earth to top of ovens.

Lower Left—Oven before top was put in place. Lower Right—Top of oven before covering.



As there are doors on each end of the oven that have to be daubed it is necessary to have two of these daubing cars, one on each side of the bank of ovens. As soon as the leveling machine finishes with an oven, the daubing car moves up and takes its place. The men on the daubing car then swing the top section of the oven door into place, closing the oven. Then all the cracks and holes in the door and between the door and the oven are daubed with clay, in this way sealing out the air.

After the coal has been burned for either the 48- or the 72-hour period, depending on whether the 7- or the 10-ton charge has been used, the doors on both ends of the coke ovens are swung out of the way. Then the watering or coke quenching machine, built by the Wellman-Seaver-Morgan Co. (see Fig. 15) is run into place in front of the oven. An arm with a nozzle on the end is extended into the oven, and moved back and forth to quench it. As

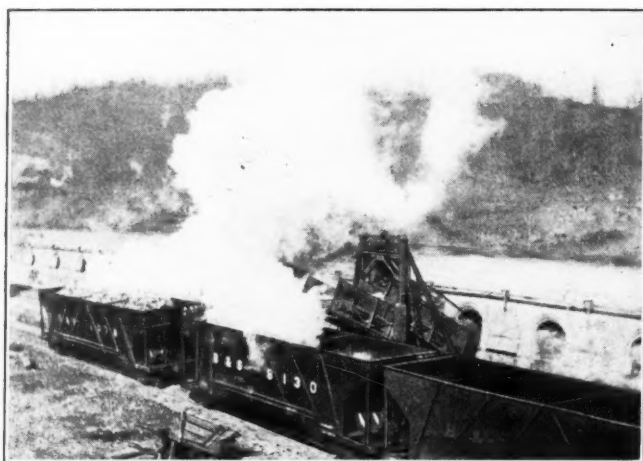


FIG. 13. VIEW OF LOADER IN OPERATION

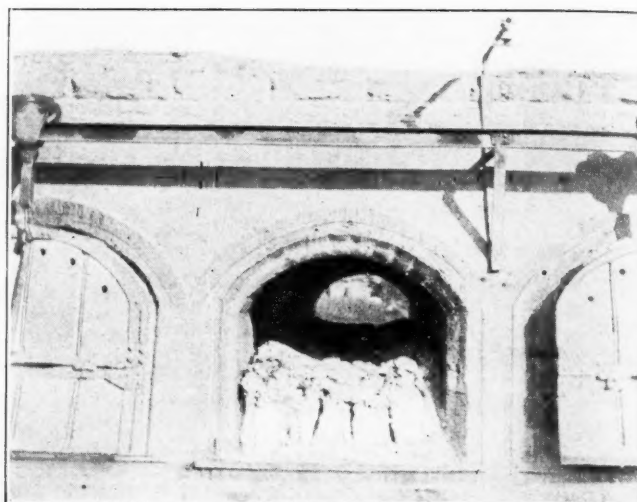


FIG. 16. COKE IN OVENS AFTER QUENCHING AND BEFORE BEING PUSHED OUT



FIG. 14. OVEN DOOR AT RIGHT READY FOR LEVELING MACHINE—UPPER HALF OPEN

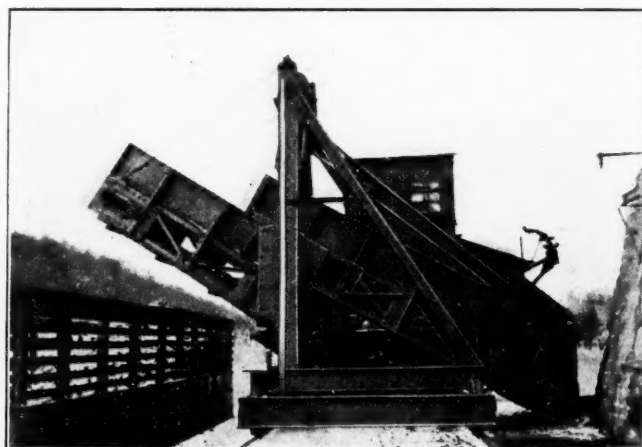


FIG. 18. SIDE ELEVATION OF LOADER

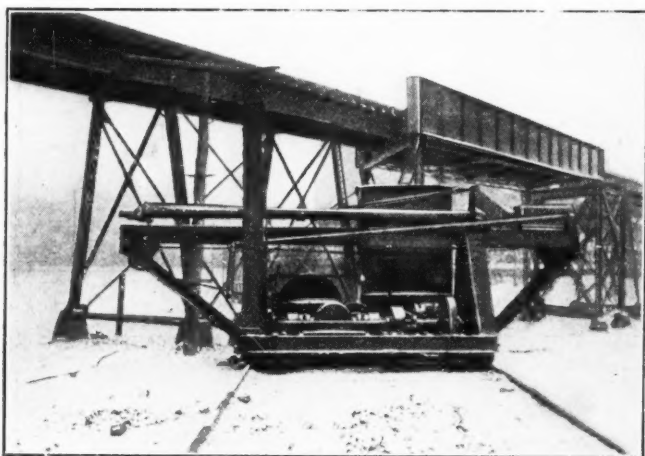


FIG. 15. WATERING MACHINE USED TO QUENCH COKE

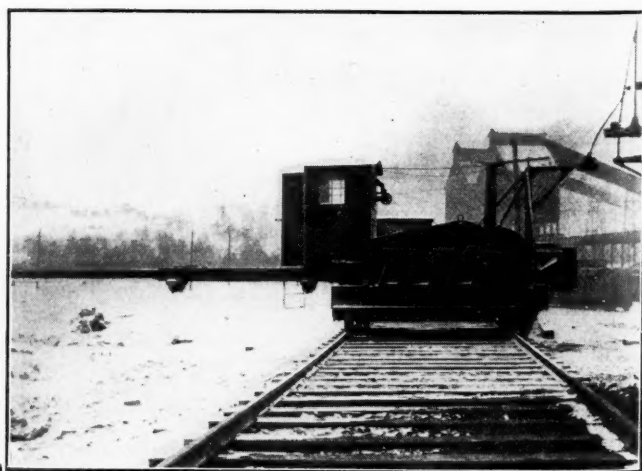


FIG. 19. MACHINE USED TO PUSH COKE OUT OF OVENS

these arms are only 15 ft. long, it is necessary to use two of these machines, one on either end of the oven; the one on the side with the leveler is always two ovens in advance of the one on the opposite or coke-loading side. Fig. 16 shows the coke in the oven after it has been watered down.

About six ovens back of the watering machine is the coke pushing machine, built by the Connellsville Manufacturing Machine Supply Co. This machine, which is operated by electricity, is shown in Fig. 19. It is placed directly in front of the oven, and a pusher arm provided with a large head shoves the coke out of the oven. The coke falls onto a loading machine (see Fig. 18) manufactured by the Scottdale Foundry and Machine Company.

The coke loader consists of a motor-driven apron conveyor, which receives the coke as it emerges from the oven, carrying it to a bar screen. As the coke is passed over this screen, the breeze is removed and the marketable coke is carried to another apron conveyor, which dumps it into the railroad car on the loading track immediately below the end of the loading machine. Fig. 13 shows this coke loader in the operation of handling the coke from an oven, which takes about 3 min., and loading it into a railroad car.

One of the great savings that is made in the use of the rectangular type of coke oven is in the number of men employed. For the operation of the 200 rectangular coke ovens at this plant the labor is distributed as follows: One man each for the larries, leveler, pusher and loader; 4 men on watering machines; 4 men on daubing machines; 5 men cleaning up coke breeze after the loading machine; 2 men placing oven doors in position; 2 men shift railroad cars; 1 man cleans up railroad track; 2 men attend to ashes; and 2 masons are required on the plant.

This makes a total of 26 men required to operate the 200 rectangular ovens, but as some of these men also spend part of their time on the beehive ovens, it is estimated that 25½ men handle the rectangular ovens while 48 men are required to run the same number of beehive ovens.

## Efficient Division of Work in Coal Mining

BY RALPH W. MAYER  
Connellsville, Penn.

The H. C. Frick Coke Co., which operates about 70 mines in the Connellsville field, has the labor at the working face divided in such a way as to make specialists of the different kinds of workmen. Doing one kind of work all the time, these men become more proficient at their particular job. After the loaders have loaded all the coal out of their working places they go off shift, and the night shift goes to work.

First come the machinemen, who undercut the coal by pick machines. One man operates the machine; another, called the "scraper" in the Connellsville field, keeps the cut clean, scraping out of the cut and shoveling back the "bug dust." Both these men work together in moving the machine from room to room and in setting it up preparatory to making a cut. The machine is loaded on a specially constructed car and hauled from place to place by a mule.

After the machinemen have undercut a room they are followed by the drillers, who bore the shotholes with power drills. The cut and holes are usually about 6 ft. deep; the rooms are 10 or 12 ft. wide. Having the track up to the working face makes the coal handy to load, bringing it almost against the car.

Three shotholes are usually drilled in a room of the size mentioned; one in the middle of the room and half-way between the floor and the roof, the other two holes being rib shots, one on each side, with the back end of the hole nearly touching the roof. The powder distributor follows after the drillers and leaves the powder for each shot; he uses his judgment as to the quantity of powder required, but two sticks to the hole is the amount usually needed.

The shotfirer, who follows next, loads the holes and fires the shots. Clay tamping alone is used. This tamping is prepared by the loader before he quits work. The damp clay is kneaded into cartridges, or "dummies," approximately the size of the drillhole and about 6 in. long. These dummies are placed in a shallow box, convenient for the shotfirer to get at them. One box of tamping is at each working place. Electric detonators and batteries are used to fire the charges of powder. All these men do only their one particular job, and then their shift is finished. The machine men and their helpers, as well as the loaders, get paid according to the cars of coal loaded from their working places.

In the morning, three hours before the mine starts work, the firebosses make an examination of the mine. The sections are small enough so that the firebosses can make several rounds through the places while the loaders are working. The firebosses start at four o'clock in the morning and quit at twelve o'clock noon. During the afternoon the assistant foreman makes several rounds through the working places, after the firebosses have left the mine.

The assistant foreman also may make examinations of the places during the morning, independently of the fireboss, to see if the fireboss is attending to his work. Each section has a fireboss, also an assistant foreman who starts work at seven and quits at three, or when the coal is cleaned out of the rooms, which may be later than three o'clock.

The loader shovels the coal into the mine cars and trims up the ribs and face so that no loose coal is left to fall down on the machinemen. He also sets one prop in the center of the room, after he loads out one car of coal, thus making room for placing the prop.

After the loader has cleaned up the coal in a working place, the timbermen come around and timber up the place. Props and cap pieces are usually sufficient, although tunnel sets and lagging are sometimes necessary. The firebosses and foremen always examine the roof on making their rounds. They also look out for other dangers. If the roof is dangerous, they send timbermen to fix it. With this division of labor and the close oversight exercised, the loader does not necessarily need to be a skilled miner.

In Leisenring No. 1 mine of the H. C. Frick Coke Co., safety lamps are used exclusively. Compressed air, mule and man furnish all the power used in the mine. The pick machines for mining the coal and the drills for boring the shotholes are run by compressed air, the air pipes running up into the rooms.



## Dry Process of Thawing Coal

**SYNOPSIS**—*The fuel, in the plant described, is not dried by steam lances thrust into the coal, but by placing the car in an insulated building in which hot air is circulated. The coal is dried rather than made wetter by the process and so is less likely to freeze solid again as soon as it is removed to the barge or wagon. The cost of thawing is less than 1½c. per ton and the process takes less than 2 hours.*

**T**HE concurrence of the coal shortage and the unprecedented cold wave of the first week in January brought to the attention of the coal-using public around the tidewater ports their dependence upon some method of thawing out the coal so as to permit its being unloaded, says Scott W. Linn in the *Engineering News-Record*. Car after car reached the New Jersey-New York harbor ports with contents so hard as to resist almost any manual effort to release them. To meet such conditions where mechanical car dumpers are used, large thawing plants have been installed at a number of terminals. These are inclosed houses in which cars or trains of cars are run, there to be heated by one means or another to a temperature which will thaw the frozen coal and permit its easy dumping from the dumper along the same track. A number of such plants has been installed by the Walter S. Newhall Co., of Cleveland, Ohio, in the past few years, culminating in one of precast reinforced concrete at South Amboy, N. J., for the Eastern Coal Dump Company.

In the first thawing plant built for this company in 1910 a live-steam point system was used. A boiler plant of adequate capacity was provided, and an underground main steam line laid from the boilers to intersecting steam lines parallel to and between railroad tracks. At intervals of about 20 ft. manifolds were used, to which several lines of rubber hose were connected. The other end of each piece of hose was attached to a malleable-iron casting on the end of a piece of 1-in. pipe about 10 ft. long. The opposite end of this

pipe was pointed and perforated near the pointed end. These pipes were drilled or driven into the frozen coal and live steam admitted to the coal through the perforations.

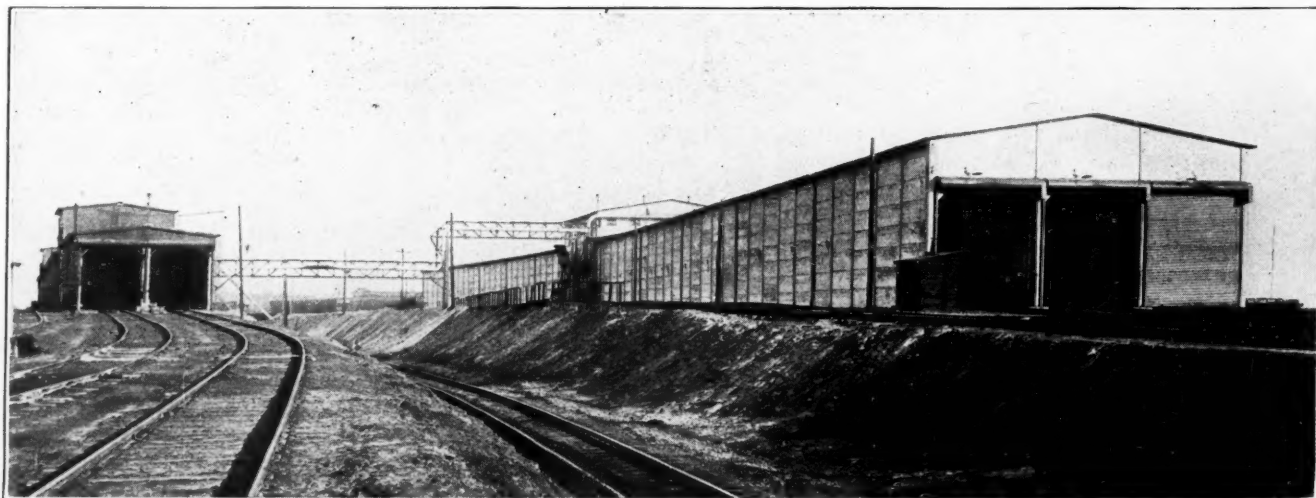
A winter's use of this thawing system proved that it was not a success, especially in thawing bituminous coal. It was not economical in the use of steam and the handling of the points and hose was dangerous to operators. When a point was driven into the body of frozen coal instead of the steam being distributed through the coal for any distance, the tendency was for it to thaw out a cylinder around the pipe, allowing the steam to escape to the top of the coal. This was particularly true in the case of bituminous coal or finely divided anthracite.

This action of the steam made it necessary to drive in the points a considerable number of times in each car. When the coal was finally thawed the moisture from the condensed steam rendered it very wet. The coal was also in a heated condition and on cool days a visible vapor arose from it for a considerable time after a boat was loaded. This gave rise to a fear among shippers that spontaneous combustion was imminent.

As a result of the various difficulties encountered in the point system a study was made of other proposed systems of thawing in which the trouble mentioned might not appear. Several methods of combining and applying heat to cars were considered, in all of which it was thought to be economical to provide an inclosed building with insulated walls. Construction difficulties, cost of maintenance and other objections led to the abandonment of most of the schemes. The plan that finally appeared to be most practical from the construction and operating standpoints was the hot-air system used in the latest plants.

Early plants of this type were built of wood frames with insulated walls and roof, and a later one at another site was of steel and concrete with insulated walls. Finally, in 1916, the latest plant at South Amboy was built of precast concrete members under a structural system developed by C. D. Watson, of the Precast Concrete Co., Cleveland, Ohio.

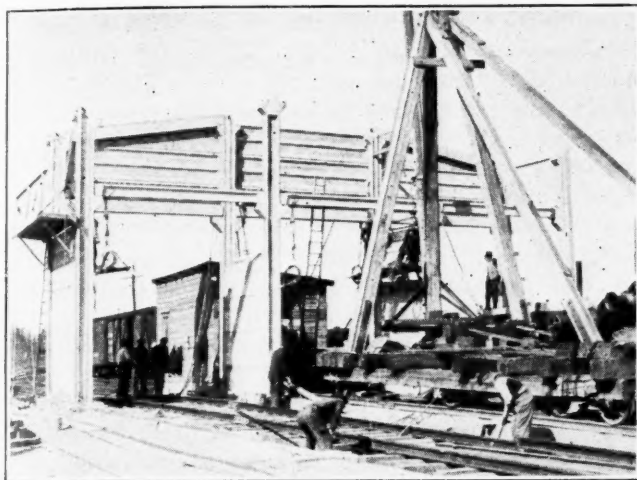
The building for the thawing plant is 570-ft. long and



ON THE LEFT THE OLD TWO-TRACK THAWING PLANT AT SOUTH AMBOY, ON THE RIGHT THE NEW THREE-TRACK PLANT



48-ft. wide. It spans three tracks and has a capacity of forty-two 40-ft. cars. It is an inclosed shed with four longitudinal rows of columns, and walls making a separate room for each of the three tracks and carrying a roof sloping both ways from a central longitudinal ridge and an intermediate ceiling, the space between being utilized for the air ducts. In the middle of the length is a higher section 50-ft. long, in the upper part



ERECTING THE PRECAST MEMBERS FOR A COAL-THAWING SHED

of which is located the blower. Structurally all the members are of precast reinforced concrete joined together.

Boilers furnishing steam for the thawing plant are situated about 400 ft. from the apparatus rooms. The boiler plant was installed several years ago for the purpose of supplying steam for the live-steam point system. It was later used for the first hot-air plant. It has been enlarged to accommodate both hot-air plants.

The building is divided longitudinally into three rooms. As each room covers one track and can be used as an independent unit with or without the two other rooms, three complete apparatus units are used. These units are duplicates in detail and arrangement, and a description of one is applicable to all.

Each unit consists of one blower, one engine and two sets of heating coils. The engine is of the vertical inclosed type, and is direct-connected to the blower at a sufficient distance away to provide clearance for free return of air to the blower wheel. The blower is of the multi-vane double-discharge type and furnishes air in large enough quantity to give frequent complete change of air in the thawing rooms. Each unit has two sets of heater coils arranged one on each side of the blower and carrying sufficient pipe to insure delivery of the desired volume of air at the required temperature. The heater coils are provided with valves and other accessories necessary to divide them into groups for further regulation of operation when the full capacity of the plant is not required.

Usually from one to two hours will thaw the ice in the coal so that it will dump freely when the car is turned over on the dumper. Under this system coal was thawed at an average of approximately 1.4c. per ton with the price of fuel coal obtainable up to the fall of 1916.

## Anthracite Shipments in January

The shipments of anthracite in January, 1918, as reported to the Anthracite Bureau of Information at Philadelphia, Penn., amounted to 5,638,383 tons. This total constitutes a fine showing for the industry considering the handicap with which the operators had to contend, and is but 60,562 tons less than the December figures. January was the coldest month of a generation in the anthracite fields. The mining companies were forced to suspend operations at many mines for intervals of several days at a time, and the weather conditions made it impossible for many other operations to reach the high average monthly figures of the past year.

The total shipments for the first ten months of the coal year, which commenced on Apr. 1, 1917 (almost coincident with the declaration of war against the German Government), amounted to 64,663,456 tons, an increase of 9,054,374 tons, or more than 16 per cent., over the shipments of the corresponding period of the preceding coal year, when the United States was still at peace.

Distributed by carrier companies the shipments during January, 1918, were as follows:

	January, 1918	January, 1917	Coal Year, 1917-1918	Coal Year 1916-1917
P. & R. R. W. ....	932,146	1,150,147	12,351,463	10,574,453
L. V. R. R. ....	983,964	985,830	11,823,066	10,024,566
C. R. R. of N. J. ....	612,979	618,188	6,960,199	5,949,713
D. L. & W. R. R. ....	1,029,977	1,000,383	10,375,386	8,875,516
D. & H. Co. ....	636,875	667,035	7,292,061	6,035,595
Penna. R. R. ....	458,408	458,896	4,664,424	4,573,286
Erie R. R. ....	632,332	683,047	7,361,401	6,292,728
N. Y. O. & W. R. W. ....	171,667	164,675	1,688,509	1,595,831
L. & N. E. R. R. ....	268,364	284,021	3,384,414	2,309,235
	5,726,712	6,012,222	65,900,923	56,230,923
*Deduction. ....	*88,329	*71,497	*1,237,467	*621,841
	5,638,383	5,940,725	64,663,456	55,609,082

\* Deduction: Tonnage reported by both C. R. R. of N. J. & L. & N. E. R. R.

## Change in Bunker Regulations

The War Trade Board announces that the rules governing the issuance of licenses for bunker fuel and ships' stores have been amended so that American vessels not requisitioned by the Shipping Board are brought within the regulations prescribed for neutral vessels in paragraphs IV and V of the "General Rules No. 1," which were published on Jan. 19 to go into effect Feb. 1, 1918. Paragraphs IV and V as amended read as follows:

IV. No application for "bunkers" by any neutral vessel or by any vessel of American registry not requisitioned by the United States Shipping Board shall be approved unless the person or persons managing, owning, chartering or controlling such vessels shall have reported to and filed, in duplicate, with the War Trade Board, the names of all the vessels and masters, and any changes that may from time to time have occurred respecting said vessels and masters, managed, owned, chartered, or controlled by him or them.

V. No application for "bunkers" by any neutral ship or by any vessel of American registry not requisitioned by the United States Shipping Board shall be approved unless the person or persons owning, managing, chartering or controlling such vessel shall enter into an agreement in a form to be approved by the War Trade Board, agreeing to comply with and be bound by each and all of the following regulations. Failure to comply with any of these regulations in the case of any one vessel may involve the refusal of "bunkers" to all of the vessels of the particular person, firm or corporation managing, owning, chartering or controlling the vessel in question.

# Supporting the Roof in Coal Mines—I

By R. D. BROWN  
Harrisburg, Ill.

**SYNOPSIS**—*Various types of roof and complications met with in coal mines; artificial and natural methods of supporting top. Adequate barrier and chain coal pillars reward intelligent laying out of mine in better recovery of coal and more economical working of a property. Discussion of temporary and permanent wood supports in this issue.*

**R**OADWAYS in mines are timbered for the purpose of protecting the lives of workingmen and for the prevention of an accumulation of obstructions which would hinder the economic operation of the haulage system. To accomplish this purpose, it must first be decided which is the most suitable policy—permanent roof protection and support or systematic continuous maintenance. Local conditions may alter a proposed plan of maintaining the roadways at any particular mine. Consider the roof and bottom, the strength of pillars, the system of mining and the life of the mine.

If possible, no timbering should be permitted on haulage roads; but in many cases this will be found to be impracticable on account of safety and cost. Nevertheless some of the most modern mines permit no timbering on roadways. The method of maintaining the roadway without roof protection not only depends on the nature of the roof but also on the relative location of air-courses. Generally the haulage road should not be located in an air-course, on account of the resulting action of the air on the roof; and in gaseous mines, on account of the danger of igniting gas not sufficiently diluted in a return airway. This difficulty may be overcome by the adoption of some form of multiple-entry system to suit the local conditions. If gas is not present, the roadways may conveniently be established on a return airway; and in case gasoline locomotives are used it is essential that this be done to provide sufficient aid to dilute the noxious gases given off.

## ROOF CONDITIONS REQUIRING TIMBERING

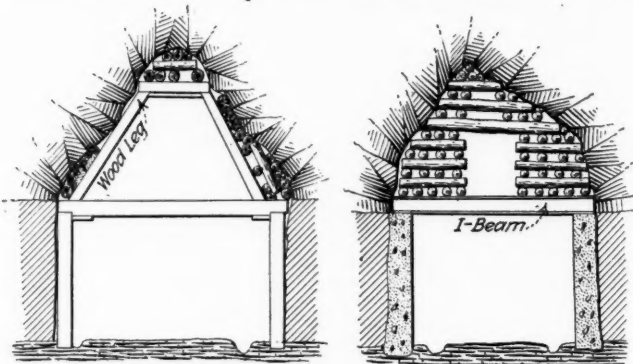
Roof conditions requiring timbering may be divided into four classes: (1) Swelling ground and moving or creeping strata; (2) tender roof; (3) faulted roof; (4) good roof which may become bad.

Swelling ground is a term applied to strata or filled ground which expands with oxidation. This condition is not common in coal mines, but is often encountered in metal mines. Moving or creeping strata is a condition resulting from robbing pillars or from a slip in the strata along the line of a fault. The movement may be slow and confined chiefly to a gradual heave in the bottom with a slight bending of the roof, which is known as a "creep"; or it may develop more quickly with immediate roof fracture and crushing of pillars, which is known as a "squeeze." If the robbing is done systematically, either advancing or retreating, heavy weight must be provided for along the haulage roads if they are to be kept open.

Timbering may check local roof movements, but it is almost useless in case great weight is to be supported. If the bottom heaves gradually, and may easily be removed, it may be possible to support local shattered portions of the roof by packwalls, timber cribs or cogs, or by closely spaced timber sets. The moving strata may not extend to the surface, and proper support in addition to the pillars may help preserve a possible haulage road; but if all pillars are removed, as in longwall mining, considerable difficulty may be experienced in maintaining an open roadway. Summing up, we may say that although timbering may help to overcome difficulties resulting from moving strata, it is more practical to anticipate and prevent roof movements by the use of barrier pillars or other mining methods.

"Tender roof" is a classification given to roof which has not sufficient coherence and strength to withstand either the separate or combined action of superincumbent weight, or stresses due to blasting or the disintegrating action of the mine air. Soapstones, shales, clod and some slates when found immediately above the coal are difficult to hold in place. If the tender strata are thin, and durable strata such as limestone or sandstone are found just above, it will usually be worth while to take down the soft strata, as shown in Figs. 1 and 2. All limestones and sandstones, however, are not sufficiently durable and chemically stable to resist the action of the air. Slate which contains a high percentage of lime may also be similarly affected.

Blasting will injure tender roof, especially if the shots are heavy—for example, those used in shooting coal off the solid. Blasting may greatly weaken roof which would be good otherwise, owing to the opening up of cracks which allow air to penetrate deeply into the rock



FIGS. 1 AND 2. EXAMPLES OF TENDER ROOF

and thus hasten its complete disintegration, as in Fig. 3. As a rule machine mining protects the roof from heavy stresses due to blasting, and in case the coal is cut at or near the top the roof is only slightly affected by the process of the removal of the coal.

Inherent structural strength of the rock does not always afford complete evidence of safety from falls. Geological disturbances may have fractured the overlying strata, leaving loose ends and unsupported rocks which must either be taken down or supported by some form of timbering. Sometimes it is not possible to de-



fect the location or extent of the seam or slip in the rock, and timbering must be done to insure safety. (These conditions are shown in Figs. 4, 5 and 6.) In other cases it would be impracticable to remove the loose rock, which may be partly held in place, because more extensive timbering would be required to support overlying strata which would then be affected.

If the roof will stand without timbering and only occasional well-defined faulty places are evident, the timbering will be local and easily constructed and main-

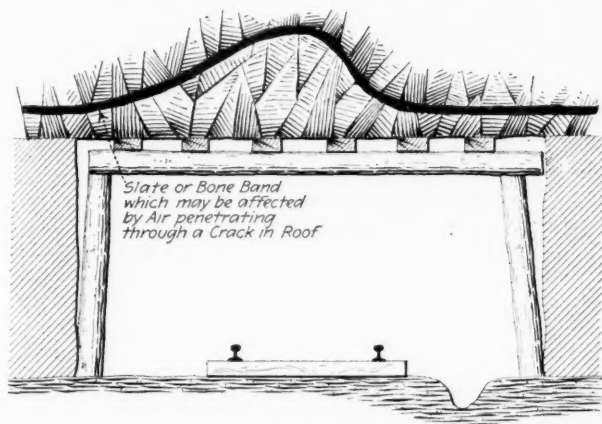


FIG. 3. EXAMPLE OF ROOF REQUIRING TIMBER

tained. In general an unprotected faulted roof is dangerous and requires constant attention, for it is not always possible to ascertain exactly its weakness, which may develop suddenly at some unsuspected point. Falls of rock can only be prevented by adequate timbering.

A large percentage of accidents caused by falls of rock are the result of carelessly trusting the integrity of roof supposed to be safe. Careful daily examination will partly eliminate the cause for such accidents on traveling ways. If the top is over 12 to 15 ft. high, a thorough examination is practically impossible and timbering may be necessary to insure safety. There is a certain hazard connected with mining which cannot be overcome practically as long as the human element exists; and it is useless, therefore, to attempt abnormal expenditures to decrease liability below a definite limit if the resulting burden from that expenditure would hopelessly cripple the industry.

#### BARRIER PILLARS

All main and secondary entries driven for development contain the haulage roads. These must be permanently maintained, and they should therefore be protected by barrier pillars the width of which will be dependent upon the nature and depth of the strata, the thickness and inclination of the seam and the method of mining. Since there are so many variables to be considered, it is not practical to derive a fixed rule; consequently, the proper width will be determined according to the best judgment of an engineer thoroughly acquainted with the limiting natural conditions and the proposed method of mining.

As a protection to roadways in the panel room-and-pillar system of mining, the recommendations of Table I will be found to be within the limits of safe operation for seams lying nearly level.

An important purpose of the barrier pillar is to protect the roof over entries from being affected by the

mining of coal from adjacent panels. If robbing takes place and the overbearing strata are shattered over insufficient pillars, many local falls may occur in the entries in spite of the fact that intervening pillars remain uncrushed. Coal left in barrier pillars may be worked out when retreating after the stub entries have been abandoned; little coal is lost and the mining of substantial pillars might decrease the cost of production at a time when other expenses have reached a maximum.

The size of the chain pillar between entries must also be adjusted to fit properly the determining natural conditions. For example, a combination of great weight, small pillars, soft bottom and a strong roof may cause a heave. As the state laws usually regulate the distance between crosscuts, it is necessary to increase the width of the chain pillar where the bottom consists of soft fire-clay or rocks of equal consistency. When the depth to the coal is more than 200 ft. it is not advisable to limit the width of the chain pillar to less than 20 ft., re-

TABLE I. WIDTH OF BARRIER PILLARS

Depth of Strata, Ft.	Thickness of Seam, Ft.	Width of Barrier Pillar, Ft.
50 to 100	3 to 5	75
50 to 100	3 to 12	100
100 to 200	3 to 5	100
100 to 200	3 to 12	125
200 to 400	3 to 5	125
200 to 400	3 to 12	150
400 to 600	3 to 5	150
400 to 600	3 to 12	175
600 to 800	3 to 5	175
600 to 800	3 to 12	200

NOTE—For depths over 800 ft., the barrier pillar may be assumed to be one-third the depth of the seam. When the roof is faulted it is usually advisable to increase the width of the barrier pillar, according to conditions encountered.

gardless of the fact that a switch might be necessary to load out the coal from the crosscut. Wide roomnecks on stub entries may also weaken the roof. In order to avoid wide openings breakthroughs should never be placed opposite roomnecks. If the roof is bad and timbering is required, a narrow location for a turnout from the roadway should always be provided. The yardage cost for driving a narrow place will be offset entirely by the reduced cost of maintaining the roadway.

The type of timbering used in coal mining should depend on its utility. By utility is meant the nature and length of service. Along main haulage roads the con-

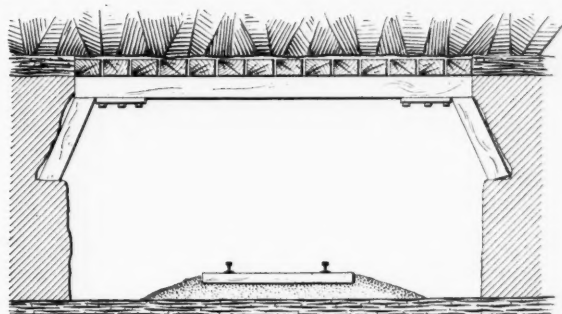


FIG. 4. EXAMPLE OF FAULTED ROOF

struction must be substantial and permanent. In rooms and stub entries the usefulness of the timbering is temporary, and the type of construction is dependent on the ultimate cost. Practically, therefore, we consider temporary construction as timbering with props and permanent construction as timbering by means of sets and masonry.

Roof protection in rooms and in short stub entries has a limited period of usefulness. Unless the roof is unusually tender, crossbars and lagging will not be necessary and props, the simplest form of timbering, syste-



matically set will serve the purpose adequately. Systematic placing of props according to a regular pre-arranged plan eliminates the chance of the faulty judgment or neglect of the average miner. Primarily the plan is adopted for the purpose of protecting the employee, and eventually it proves to be economical.

With ordinary conditions, rows of props set from 4½- to 6-ft. centers on each side of the roadway, but never closer than 2½ ft. from the rail, will give adequate protection from local falls of slate. Successive rows will

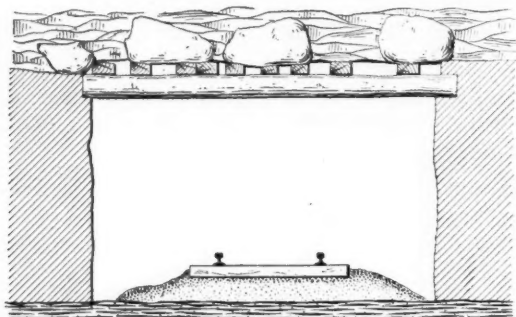


FIG. 5. EXAMPLE OF BOULDER TOP

depend on the width of the place, the nature of the roof and the method of working, and all succeeding rows should be staggered to be thoroughly effective.

If props are used to prevent local falls where the strata are moving, the great weight will crush the solidly set prop; and provision must therefore be made to prevent this early failure. The most effective method of doing this is to sharpen one end of the prop, thus causing an earlier partial failure but not a later ultimate failure. In Europe a telescoping prop has been introduced to be used where great weight is encountered and the top and bottom are both hard. This prop is made of a steel cylinder, partly filled with sand, cinder or refuse, into which is fitted a wooden plunger. Weight forces the plunger deeper into the cylinder, gradually compacting the filling. If desirable, the height of the prop may be adjusted after the weight is on by removing a part of the filling through holes in the cylinder, which are otherwise covered by a steel band. A similar result may be obtained by using a hollow round prop of steel or iron with a thick, soft wood cap which will crush under an increasing weight.

The diameter or sectional dimensions of any prop depend on the length, the weight to be supported and the material from which the prop is made. If wood props are used, as is almost universally the case, the kind of wood will be quite a factor not only on account of the structural strength but also on account of the resistance to decay. A prop is nothing more than a simple column, and the mechanical principles of structural design apply accordingly. Practical experience has shown that a column the length of which is greater than 15 times its least diameter is subjected to bending stresses additional to and resulting from the direct compressive stresses. Therefore, no prop should be longer than 15 times its least diameter. On account of the unreliability of small pieces of timber, no prop should be less than 4 in. in diameter. Since the diameter of the prop bears a definite relation to the length and to its structural strength, depending on the kind of wood from which it was made, Table II has been prepared, showing these relations.

The spacing of props may be increased by increasing the length of the cap pieces placed over the top of the prop. The immediate service of a cap piece is to adjust the length and to protect the prop from early failure by splitting; but by using a cap piece of considerable length a greater area of roof will be supported safely, by means of the cantilever action developed. Along the roadway the cap pieces should be placed perpendicularly to the line of track, as the cantilever ends thus span a part of the necessarily wide space between the rows of props on each side of the track.

When the life of the roadway is greater than five years, timbering, if necessary, must be substantially permanent. Adequate protection will require standard

TABLE II. LENGTH AND LEAST DIAMETER OF PROPS OF VARIOUS KINDS OF WOOD

Kind of Wood	Length of Prop in Feet										
	5	5½	6	6½	7	7½	8	8½	9	9½	10
Hickory											
White oak											
Locust											
Yellow pine, long leaf	4	4	4	4	4½	4½	5	5	5½	6	6
Red oak											
Black oak											
White ash											
Yellow pine, short leaf	4	4	4	4½	4½	5	5	5½	6	6	6½
Norway pine											
Douglas fir											
Spruce											
Hard maple											
Ash	4	4	4	4½	5	5	5½	6	6½	7	7½
Elm											
Chestnut											
Beech											
Redwood											
White pine											
Cedar	4	4	4½	5	5	5½	6	6½	7	7½	8
Hemlock											
Soft maple											
Gum											
Cypress	4	4½	5	5½	6	6½	7				

cross-bars, or caps, and lagging. In order to increase the period of usefulness of timber sets only the most durable woods available should be used. Hard woods are more resistant to destructive agencies than soft

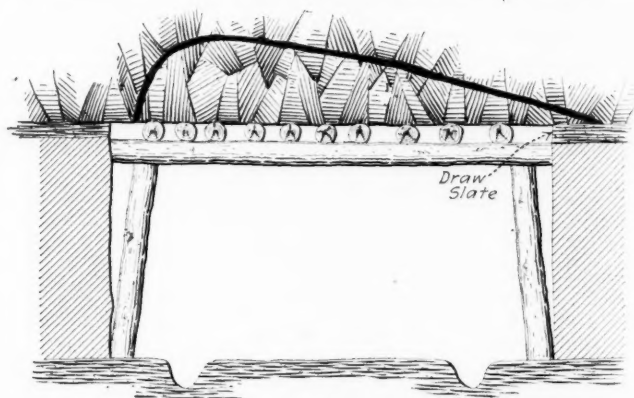


FIG. 6. SLIP IN ROOF DIFFICULT TO DETECT

woods and are therefore preferable if the cost is not excessive.

All mine timbers should be cut in the winter months, when the sap is out of the wood, and allowed to season properly before being taken underground. Seasoned wood not only has greater strength but is also more resistant to decay. Peeling the bark from green timber before seasoning will also add to its life from 10 to 50 per cent., according to local conditions.

The factors which cause a variation in the life of wood mine timbers are: (1) Humidity, temperature and

quantity of air in circulation; (2) the amount and chemical content of the mine water present; (3) condition of the timbers when placed. Fresh dry air adds to the life of timber properly exposed to the ventilating current; but moist, stagnant air furnishes an ideal condition for the growth of wood-destroying fungi. These fungi develop under favorable conditions from spores which are carried from infected timber by the air currents. Replacement with untreated wood should therefore not be intermittent, and scattering but whole sections should be renewed at one time.

Mine water when present in quantities sufficient to keep the timber continuously wet will preserve such timber for several years, but condensation from a warm, humid atmosphere may cause an early decay. Green timber has only approximately two-thirds the strength of well seasoned timber and it is also more subject to decay, due to the presence of sap in the wood. Experience has proved that green posts have a comparatively short life when placed in the mine immediately after being cut.

*(To be continued)*

## Clean and Otherwise Acceptable Coal

BY H. A. TURNER  
Birmingham, Ala.

Clean coal will always be demanded by the coal market. That operator who produces the cleanest fuel will, under normal conditions, receive a better price for his output than his less-careful competitor, and during a dull market will run full time while the other fellow who produces an inferior product will suspend operations for lack of orders.

Over this question of clean-coal production there has always been a struggle between the mine management and the miner. It is human nature, or it is certainly the human inclination to follow the lines of least resistance—that is, to pursue the easiest way or the way which appears most profitable.

In the absence of a deterring hand the miner breaks down his coal in the most effective manner as to quantity, loads coal and rock together, and receives the coal compensation for the combined weight. This is his natural inclination, because less effort is required and the results, to him, appear more profitable. On the other hand it is easier for the operator to dispose of a product properly prepared; and in case of coal free from impurities his returns are greater, hence the struggle which has gone on for so many years.

In the days of the skilled coal digger, when practically all the coal was pick-mined and wedged down, clean coal was produced with little effort on the part of the mine manager.

When explosives were introduced for breaking down the coal these same skilled miners were inclined to use them sparingly, and with judgment, finding it difficult to depart from their habits of loading an acceptable product. But the elimination of the manual labor brought about by the explosives had its effect, in a limited way, and the coal began to come out with a little slate mixed with it.

Production of coal increased rapidly, undercutting machines were perfected, and explosives came into universal use. Production was so rapid that the old-time

coal miners were insufficient in number to handle the situation and new ones ceased to be trained in their methods, preferring the short cut of shooting on the solid and the operating of a coal-cutting machine.

With the advent of the general use of explosives, mining machines, and the rapid increase in coal production, came a class of miners, quite different in training from the old pick miner, and with ideals far removed from those of the latter. Under the new conditions coal-washing plants began to appear, picking belts were installed here and there, friction between miner and manager arose, and various forms of preventive measures were formulated by mine owners with the hope of checking the growing inclination of their men to load out everything in sight, without regard to its fitness for market. Thus another step in the deterioration of the miner's habits and methods is recorded.

Picking belts, screens, coal washers, etc., have been made necessary by the conditions described above, the coal consumers demanding a product reasonably free from foreign matter. The mine owners, continually harassed by the consumers, have endeavored to control the miner by penalizing him in various ways. In many cases the penalties have been severe, in some unjust, and in nearly all an unfortunate feeling of antagonism has sprung up between miner and manager which detracts from the efficiency of the mine organization.

These things being true, it would appear logical to seek until found some method and device that will create an incentive for the miner to perform his work well. Such an incentive should be stronger than that for shooting coal to pieces on the solid because it is easier broken down in this manner, and one that is stronger than the inclination to load everything in sight because this is less trouble than picking out the rock. A step in this direction would be to establish bonuses as a reward for good work and as an offset to the fixing of any just penalties that may be required.

Again, as a result of a nagging coal-consuming public, penalties have been enforced which were too severe. Why not modify these to the extent that the punishment will be in keeping with the dereliction and no more?

My observation of the different methods by which the output of individual miners is tested for rock is that the tests are imperfect in that the average of the miner's work is represented only by accident; that guilty miners escape "dockage" when deserving it; that innocent ones are punished; and that the operator does not discover his real loss until customers reject shipments of coal, or in the case of a washery, railroad weights of the prepared product are in hand.

It would seem wise, then, to work out some mechanical device (which can be done) that would truly sample the daily work of each individual miner and then make a separation which would clearly indicate the average amount of rock being loaded out by each.

A sheet form could be got out and posted in a public place, at the tippie or company's office, showing the record of each miner for each day.

It will be found by those trying this plan that the impurities in the coal will, in many cases, be reduced by one half; that the manifest fairness of the tests has a most wholesome effect on the men; that in a short time a pride will spring up among the miners in im-



proving their publicly posted record; and that the rivalry between them will yield the mine owner results to be attained in no other manner. This condition will replace years of friction and ill feeling between miner and mine manager, as well as the disorganization and other ills growing out of the old, ill-considered "dockage" system.

The plan mentioned here for improving and practically eliminating a most troublesome and expensive condition of affairs is not an unreel theory of a remedy which every operator would like to see successfully applied, but is a true description of what has been accomplished at the Banner mine, Alabama, property of the Pratt Consolidated Coal Co. The mechanical device for sampling the coal and separating it is the work of Erskine Ramsay, vice president and chief engineer of the company. It is fully described in Patent No. 1,191,227, issued July 18, 1916. A description of this device together with some of the results attained was printed in *Coal Age* for Apr. 7, 1917.

The growing evil arising from the improper loading of coal by miners, discussed in the early part of this article, has been highly intensified since the country entered the war. As illustrating the point in question, Van H. Manning, director of the Bureau of Mines, Department of the Interior, states that coal which ran from 6 to 8 per cent. of ash in normal times is running from 12 to 18 per cent. of ash in these abnormal times.

General installation of the device in operation at the Banner mine or a similar mechanical sampler, and the adoption of the methods used in connection with it would, in my judgment, be of great national benefit at the present time.

### New York City Coal Requirements for the Coming Year

The various branches of the New York City government will consume at least 532,590 tons of anthracite and bituminous coal during 1918, according to a report submitted by Francis P. Bent, Director of the Bureau of Contract Supervision, to Mayor Hylan and the members of the Mayor's Coal Committee headed by City Chamberlain Alfred J. Johnson. The report shows that the budget allowance for coal for the 36 departments and institutions provides for the actual consumption of 516,280 tons of coal at a cost of \$3,346,079.29. The difference between the budget allowance and the estimated needs for the year is due to the continual changes taking place in the various institutions and departments, to allowances made in the budget for projected buildings not yet in operation, and in some instances to money spent for coal out of the corporate funds of endowed enterprises such as the New York Public Library and the Metropolitan Museum of Art.

Of the tonnage provided for by the budget, less than one-quarter, or 122,631 tons, will be domestic sizes of anthracite; the remainder, 409,959 tons, will be steam coals. Of the entire amount, 460,345 tons will be anthracite; 63,495 tons will be semi-bituminous, and 8750 tons will be a mixture of buckwheat No. 3 and semi-bituminous. The points of delivery number 1700, located in 20 zones into which the Greater City has been divided.

The estimated needs and the budget allowances of the several kinds of coal used are as follows:

Anthracite Coal	Estimated Needs	Budget Allowance	Budget Estimated Cost
Broken.....	48,812.0	47,655	\$447,557.75
Egg.....	26,377.1	25,945	219,005.85
Stove.....	11,391.0	11,747	99,908.25
Pea.....	34,899.0	31,311	235,782.00
Chestnut.....	1,152.0	581	5,091.95
Buckwheat No. 1.....	74,029.0	60,557	428,854.25
Buckwheat No. 2.....	116,652.0	116,330	652,337.50
Buckwheat No. 3.....	147,033.0	153,563	780,013.74
Soft coal, semi-bituminous.....	63,495.0	68,591	477,528.00
Semi-bituminous and anthracite coals mixed.....	8,750.0		
	532,590.1	516,280	\$3,346,079.29

The report quotes from a statement of the Federal Bureau of Mines to show what the use of inferior coal means in the operation of the boiler room, stating that the preparation has not been so good as in times past and that repeated cases have been brought to the attention of the Bureau of Mines where coal which would run from 6 to 8 per cent. ash in normal times is running from 12 to 18 per cent. at present.

The report further says that the estimated needs, 532,590 tons, will cost about \$3,461,835 and that if the government does not make adequate provisions for controlling the quality of the coal sold, and in the production and use of steam in city institutions, the city will have to make provisions for an increase of approximately 15 per cent. over the figures given, which is estimated to be 79,888 tons of coal at a cost of \$519,272.

### Legal Department

**NEW YORK WORKMEN'S COMPENSATION ACT**—Although it is doubtful that an employee injured while shoveling coal from a freight car into a wagon, through his slipping and coal falling upon him, was entitled to an award under the New York Workmen's Compensation Act, on a theory that he was engaged in handling coal "on any dock, platform or place, or in any warehouse or place of storage," or that he was engaged in the "operation of wagons or vehicles," occupations declared by the Act to be hazardous, still his employer, having entered into an agreement for a settlement and that agreement having been approved by the State Industrial Commission, neither the employer nor an insurance carrier is entitled to have the agreement set aside on the ground that the injury was not compensable under the law. (New York State Industrial Commission's "Bulletin," January, 1918; *Hassen vs. Elm Coal Co.*)

**ASSESSMENT OF UTAH COAL LANDS**—In a suit brought by the state auditor of Utah against a county auditor to compel correction of an erroneous assessment of coal lands whereby lands purchased from the United States and from the state were assessed at a flat rate of \$50 an acre, although the Federal lands were purchased at prices ranging from \$10 to \$350 an acre and the state lands at from \$50 to \$10,000, the Utah Supreme Court sustains the right of the state auditor, in a proper case, to maintain a mandamus suit to compel a proper assessment, but holds that such suit does not lie where the assessor's functions have ended by completion of the assessment, equalization of taxes, establishment of the tax rate, apportionment of funds, and by the passing of the assessment roll beyond his control. For the guidance of assessors, however, in the future the court points out that assessment of coal lands at a flat rate is improper under the constitutional and statutory provisions in force in the state, requiring coal lands purchased from the United States to be assessed at the price paid the Government therefor, and other property, including coal lands not purchased from the United States, at actual value. (*Ririe vs. Randolph*, 169 Pacific Reporter, 941.)



## Developments in Byproduct Coking

THE subject of a paper by George Blake Walker before the December meeting of the Institution of Civil Engineers (London, England) was "Recent Developments in Byproduct Coking." He showed that in the present century a revolution has taken place in the system of coking, and now large numbers of plants of ovens of the retort type with recovery of byproducts are in existence, and are being constantly added to. The principles of external heating of the retort oven, as originally introduced by Evenee Coppée, remain the same, but considerable modifications in detail have been introduced as the result of experience. The object of these modifications has been chiefly to increase the rapidity of the coking process by the application of more intense heat, and by the heating of the air for combustion, convenience and economy in operation having also received a good deal of attention. The recovery of byproducts has been greatly developed and in particular many experiments with more or less success have been made for achieving the "direct" recovery of sulphate of ammonia. One of the most important developments has been the utilization of the surplus gases in internal-combustion engines, and for town illumination, metallurgical furnaces and other manufacturing purposes.

### RESULTS SOUGHT IN LATEST-TYPE OVENS

Mr. Walker says the objects aimed at in all recent ovens are: (1) More intense and better equalization of heat in all parts of the oven walls, in order to burn off the charge more quickly and uniformly. (2) Equalization of the pressure of the gas between the ovens and the heating flues. (3) Reduction in the time of coking, whereby a larger output of surplus gas, coke and byproducts is obtained from a given number of ovens, and reduction in the cost of coke making, etc. (4) Good means of inspection of the heating flues. (5) Facility of regulation. (6) Increased yield of ammonia and benzol. (7) Reduction of quantity of gas required for heating the ovens by the use of regenerators.

The retort coking systems may be divided into two classes—namely, that in which byproducts are not recovered, and that in which they are. In the first method the gases of distillation are conducted, without the separation of the tar and ammonia, into the oven flues where they are utilized for burning the charge contained in the oven, and afterward to fire boilers or heat furnaces. In the second method the ovens may be either of the waste-heat or of the regenerator type, the tar and ammonia being separated and the purified gases used for other purposes. In waste-heat ovens upward of 80 per cent. of the gas is burned in the oven flues. In the regenerator type 40 to 50 per cent. of the gas driven off during the burning of the charge of coal is used for heating the oven flues, and the balance is available either for heating boilers, or for supplying gas to gas engines or for town lighting, etc.

The author described the principal features of half a dozen of the most successful types of oven in use and the recovery plants associated with them, and cited figures showing the economies obtained by the "direct"

recovery of sulphate of ammonia. He also compared the relative value of the surplus gases used in producing steam (utilized through turbines) and in internal-combustion engines, to the advantage of the latter. He summarized the advantages of the plant described thus: (1) The recovery of the sulphate of ammonia is performed without the use of condensers, coolers or scrubbers. (2) The results obtained are equally good in summer and in winter, as they do not depend on the cooling and scrubbing of the gas, and no loss of ammonia can occur. (3) No cooling water for condensers is required. (4) No noxious effluent whatever is produced, whether or not benzol be recovered. (5) The labor and supervision involved in the working of the plant are less than with the scrubber process. (6) The plant is simple in design and no more expensive to maintain than the scrubber process.

Mr. Walker says the use of coke-oven gas for power purposes at collieries is certain to make rapid progress. Up to the present time colliery managers have scarcely realized that a considerable supply of power from byproduct coke ovens was available. In some cases there is a disposition to build waste-heat ovens and use the whole of the gases, after they have heated the ovens, under boilers. There is, perhaps naturally, a very great reluctance on the part of most colliery managers to scrap existing steam plant which is serviceable, although it may be far from economical, and the tendency seems to be in favor of introducing steam turbines to generate electricity, especially where exhaust steam can be utilized.

### BETTER TO GASIFY POOR MATERIAL

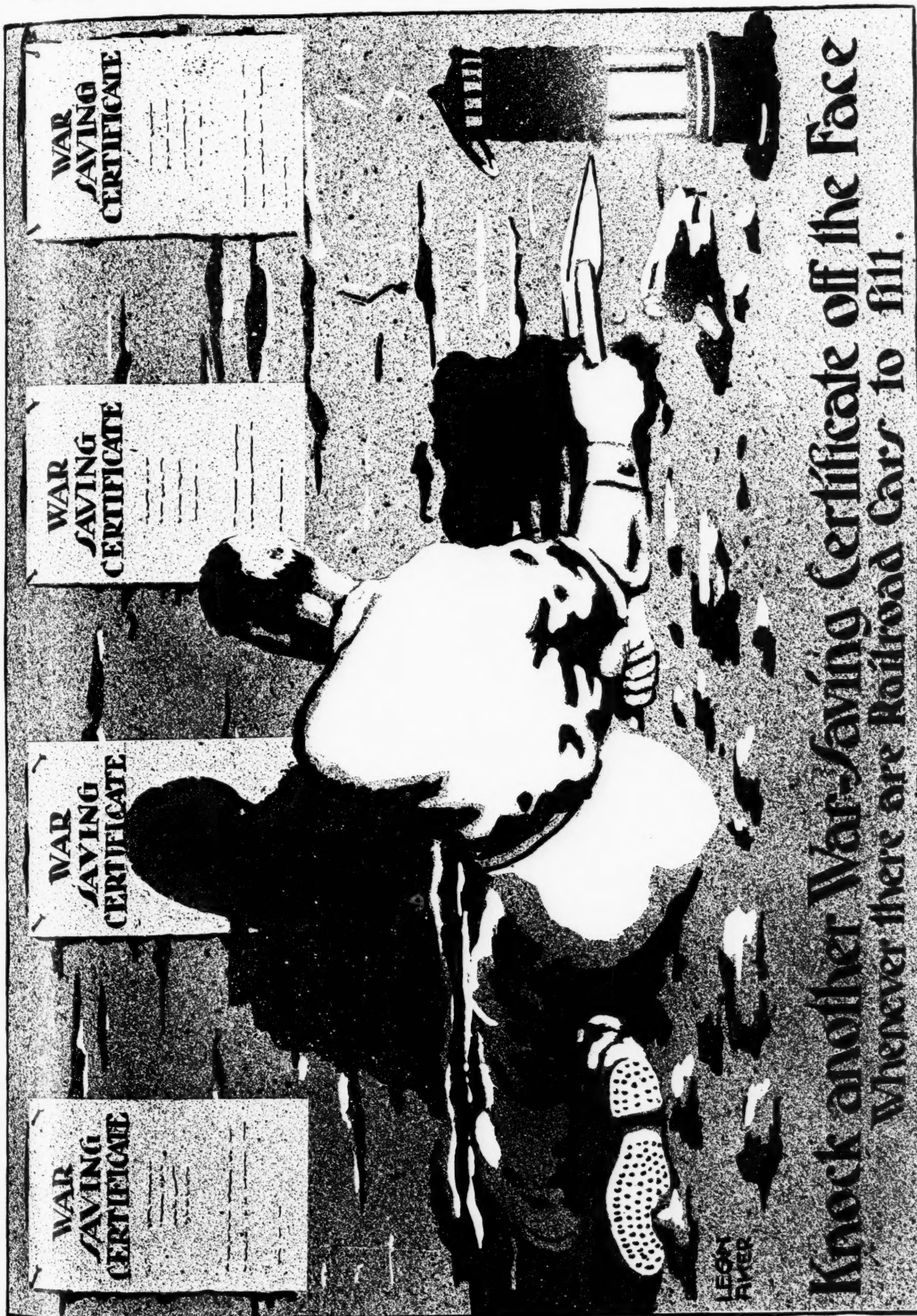
"Mixed-pressure" turbines, running on exhaust steam during the day and on live steam at night, have been introduced at collieries in large numbers. From the point of view of actual heat efficiency the author says the advantage is clearly in favor of the gas engine and the regenerator type of oven; but the varying circumstances of collieries modify this conclusion to some extent, inasmuch as at most pits there is a quantity of unsalable fuel available. There can, however, be no doubt that such inferior material could be gasified in gas producers with results far more advantageous than if it were burned under boilers.

Comparing the amount of power which can be obtained by raising steam with waste heat from nonregenerator ovens and using it in steam engines, and by using the surplus gases from regenerator ovens in internal-combustion engines, Mr. Walker says a coal containing 30 per cent. of volatile constituents and yielding not less than 10,000 cu.ft. of gas per ton may be taken as representative.

In a battery of 50 modern byproduct ovens, each having a capacity of 10 tons of damp coal, and burning off in 30 hours—say  $5\frac{1}{2}$  charges burned per week—2750 tons of coal per week would be carbonized. If these are "waste-heat" ovens without regenerators, there will be sufficient waste heat at about 800 deg. C. to fire six Lancashire boilers (say  $30 \times 8$  ft.), which would evaporate (say) 500 gal. of water per hour, and produce steam in noncondensing engines to the extent







**Knock another War-Saving Certificate off the Face**  
Whenever there are Railroad Cars to fill.

# News From the Capitol

By Paul Wooton



*[Men of the coal industry who find it necessary to get to the national capital on business these days are invited to avail themselves of the facilities afforded by the Washington Bureau of "Coal Age," which is centrally located in the Union Trust Building. The bureau is in charge of Paul Wooton, who is in a position to be of material assistance to those who have business to transact with Government officials. Have your mail addressed care of "Coal Age," Room 307, Union Trust Building, Washington, D. C., while at the capital.—Editor.]*

## How Settlement Will Be Made for Coal Diverted by Fuel Administrators

Settlement for coal which was diverted from the original consignee by order of fuel administrators, is to be handled as follows, an order from the Fuel Administrator states:

Bituminous coal shipped from the mines prior to Jan. 15, 1918, and diverted in transit on orders of or by authority of the United States Fuel Administrator, so that it was not received by its original consignee, shall be paid for by the party receiving the coal to the owner thereof (either shipper, jobber or original consignee as the case may be) by agreement between the parties in interest on either of the following bases as they may elect, and if they are unable to agree then on that one of the following bases which the party who was the legal owner of the coal at the time of such diversion may elect:

1. At the going Government price at the time and place of shipment, and in addition thereto the jobber's commission, if a jobber was the owner, or if the owner purchased through a jobber the coal so diverted and has paid or is legally liable to pay the jobber's commission thereon; or

2. At the contract price at which the coal so diverted was shipped or sold under a bona fide contract enforceable at law, and in addition thereto the jobber's commission, if a jobber was the owner, or if the owner purchased through a jobber the coal so diverted and has paid or is legally liable to pay the jobber's commission thereon.

Upon receipt by the United States Fuel Administration (Transportation Department) prior to Mar. 1, 1918, of a written request therefor, showing that settlement between the shipper or jobber of the coal so diverted, and the party to whom such coal was diverted, has been made on the basis of paragraph numbered (1) hereof, instead of on a higher contract price under paragraph numbered (2) hereof, conditioned upon replacement by the shipper to the original consignee of an equal number of cars of coal at the contract price, and that the original consignee has assented to such settlement, the United States Fuel Administrator will arrange to have supplied to the original shipper prior to Apr. 1, 1918, if practicable, cars for the purpose of enabling the shipper to make such replacement in addition to his mines' distributive share of available cars.

In any case where settlement has already been made at the going Government price for any diverted coal, the par-

ties will be deemed to have elected the basis of paragraph (1) above, and if the shipper in any such case, in which the coal was shipped to the original consignee at a higher price under a bona fide and enforceable contract, files a request with the United States Fuel Administration, Transportation Department, in accordance with the provisions of the foregoing paragraph, the United States Fuel Administrator will endeavor in accordance therewith to have cars placed at such shipper's mine for the replacement of the quantity of coal diverted and for which settlement has thus been made.

Settlements, under the terms of this regulation, for diverted coal may be made only as full settlement of all liability in connection with such diversion as between all parties, including the Government.

## New Coal Price Regulations at Three Illinois Mines

New prices have been allowed three mines in Illinois, as follows: Moweaqua Coal Mining and Manufacturing Co., Moweaqua, Christian County, run-of-mine, \$2.40 prepared sizes, \$2.65; slack or screenings, \$2.15. Assumption Coal Mining Co., Assumption, Christian County, run-of-mine, \$3; prepared sizes, \$4.55; slack or screenings, \$2.15. Spoon River Colliery Co., Ellisville, run-of-mine, \$2.65; prepared sizes, \$2.90; slack or screenings, \$2.40.

## Increase Granted in Central Pennsylvania

After long negotiations, central Pennsylvania has been granted an increase in price. Sixty cents has been added to the President's schedule, which for run-of-mine in that district was \$2. By permitting an increase to \$2.60, Dr. Garfield stated that nothing could occur that would be a more cogent argument in favor of the reduction of the new prices than for him to learn that the operators to whom these prices have been granted are not constantly increasing the productivity of their mines by proper development, or to learn that the amount of production from this district is not constantly on the increase, or that the coal shipped from the district is not kept free from impurity.

In addition to the 60c., five mills per ton may be added in order to provide funds to meet the expenses of pools and other arrangements made by the operators to facilitate the movement and distribution of coal. An operators' committee is to be named later to handle the funds which thus will be created.

The central Pennsylvania district is described by the Fuel Administration as consisting of the counties of Tioga, Lacombe, Clinton, Center, Huntington, Bedford,



Cameron, Elk, Clearfield, Cambria, Blair, Somerset, Jefferson, Indiana, Clarion, Armstrong, Butler, Mercer, Lawrence and Beaver; Allegheny, from the lower end of Tarentum Borough north to county line; in Westmoreland County from a point opposite the lower end of Tarentum Borough north along the Allegheny River, and along the Kiskiminitas River eastward to the Conemaugh River and continuing along the Conemaugh River to the county line of Cambria County.

### Weekly Production Statistics

Coal production for the week ended Feb. 9 was 10,215,000 tons. Beehive coke production for that week totaled 505,000 tons. Anthracite shipments were 32,011 cars. These figures are based on returns made by practically all producers to the Geological Survey.

The rate of production for the week ended Feb. 9 reflects the improvement in weather conditions and is the highest attained since the week ended Jan. 5. With better supplies of coal, the beehive ovens were able to show an increase of 75,000 tons over the week preceding. The anthracite forwardings, however, are 2500 cars under shipments of the week ended Feb. 2.

During the week ended Feb. 2, byproduct coke plants, representing 99 per cent. of production, were operated at 70.8 per cent. of capacity. They produced 517,184 tons of coke.

### New Maximum Prices for Beehive Coke

Maximum prices for beehive coke in certain districts were fixed last week by the United States Fuel Administration. For coke produced in the New River district the maximum price fixed was \$8. The price for the Big Seam district in Alabama was fixed at \$6.75, except the coke made by the Newcastle Coal Co., which is permitted to charge \$7.50. In the Black Creek, Brookwood and Blue Creek districts in Alabama an \$8 price was fixed. An exception from this latter is a price of \$8.25 allowed the Empire Coal Co. at Empire, Ala. The highest price that may be charged by the United States Cast Iron and Foundry Co. at Bessemer, Ala., is \$8.50. The McCurtain Coke Co., at McCurtain, Okla., will be permitted to charge \$10.75 for smelting coke and \$11.75 for selected 72-hour foundry coke. Any grade of coke made in Walker County, Georgia, is to be sold at a maximum price of \$8.75.

### Jobbers' Margin To Be Eliminated

A general increase in the President's coal price schedule will be made before Apr. 1, so as to allow coal operators to pay the jobber for his service. At the same time the existing jobbers' margin will be eliminated. This action, the Fuel Administration announces, makes possible a reduction in retail prices of both anthracite and bituminous coal. This is a return to the system in vogue before the Government assumed control of the industry. The change was made necessary by certain abuses of the plan, whereby the jobber received a guaranteed commission, as well as by the fact that the jobbers' commission could be reduced by the return to the old method.

### Retail Dealers Asked To Report on Receipts and Storage of Soft Coal

In the effort to obtain an equitable distribution of coal among the essential industries and users, the Fuel Administration has requested *Coal Age* to reproduce the blank shown below. Retail dealers supplying coal for heating have, of course, very necessary requirements, and in the effort that these needs may be

UNITED STATES FUEL ADMINISTRATION						
Department of Distribution, Washington, D. C., February, 1918. Return to Room 4205, Interior Bldg., in enclosed envelope that requires no postage. Report on Receipts and Storage of Bituminous Coal by Retail Dealers.						
State _____						
County _____						
Town _____						
Approximate population _____						
1. Receipts of all soft coal (in tons of 2000 pounds) by months, in 1917.						
January	February	March	April	May	June	
July	August	September	October	November	December	
2. Yard storage capacity in bins and on the ground _____ tons.						
3. Tons sold in calendar year, 1917, to householders, hotels, restaurants, hospitals, schools, charitable institutions, office buildings, stores, churches, theaters, municipal buildings (do not include water works or pumping stations; or public utilities such as gas companies and street railways) _____ tons.						
4. Tons sold in calendar year, 1917, to all other users _____ tons.						
5. Was coal received by rail or water? _____						
6. From whom did you purchase your coal in 1917?						
Name		Address		Total tons purchased		
_____		_____		_____		
_____		_____		_____		
_____		_____		_____		
In order that provisions may be made by the United States Fuel Administration for coal to all domestic consumers next year, it is necessary that you fill out and return this blank by March 4th. Failure to completely and promptly supply these figures may result in your not receiving a full supply of coal.						
Date signed.				Name of person signing.		

promptly and surely met during the coming year, J. D. A. Morrow, Manager of Distribution of the Fuel Administration, is sending these blanks to all dealers of whom he has record.

If these blanks are generally answered, the information supplied will be tabulated by localities, and thus furnish the Fuel Administration with the desired data. Any retailer who has not received such a schedule should make a copy of it and send in to Mr. Morrow at the earliest possible date the information requested.

Smithing coal must now be sold at the going Government price for prepared sizes from the mine producing the coal, according to a recent order.

Every effort is being made by the Secretary of the Interior to arouse interest in the coal fields of Alaska. He points out that the Matanuska field in 1917 produced 50,000 tons of bituminous coal and predicts that it will double that output in 1918. He is calling attention to the opportunities which are offered to file applications for leases in the Nenana field. These applications may be filed up to Mar. 1 or during the period of advertisement of the applications filed up to that date, which will be for a period of thirty days, beginning Mar. 4.

# THE LABOR SITUATION

EDITED BY R. DAWSON HALL

## General Labor Review

When will we get discipline behind the military lines as well as in them and settle our differences without strikes? This week's record is bad—a little strike in the anthracite region and a big strike in Alabama. It is to be hoped that the parties at fault, whoever they may be, will receive the strongest public censure. But in any event the mine workers should not strike. Right or wrong, the situation is too tense for this crude and dangerous method of adjustment.

At the Enterprise colliery at Excelsior, Northumberland County, Pennsylvania, 500 men and boys struck on Feb. 16 because the operators, W. L. Connell & Co., had failed to adjust wage differences to suit their personal wishes.

A conference between officials and the colliery grievance committee failed, the men demanding that company miners, who had been reduced to consideration miners—that is, from day labor to piece labor—be reestablished in their former places and given the higher scale of wages paid to company men under the new wage contract. The company reserved its undoubted right to change men from one class of labor to another, and the strike is the result.

The strike in Alabama is quite serious. There, several mines are closed down. The company's opposition to the union is the cause of the trouble. Dr. Garfield has ordered the operators to recognize pit committees, which is tantamount to a recognition of the union. The operators having strikes are said to refuse to accord this recognition. They do not oppose the 8-hour day, but they do think that Dr. Garfield is unjustified in demanding the other provision.

The supply of cars is mending considerably in some places. In the Central Illinois district the men are working more steadily than for a long time. The car supply is better than it has been for months, and the mines of the members of the Central Illinois Operators' Association are producing almost their normal output of more than 60,000 tons a day.

In Ohio the condition is less satisfactory. Five locals at Murray City, Carbon Hill, Corning and Jacksonville, have sent a protest to William G. McAdoo, the Director of Railroads, saying that the mines are working less than half time while others are working less than 25 per cent. of full time. They say they believe that there is not such a severe shortage of cars as of motive power, and they petition Mr. McAdoo "to reduce the number of passenger trains to a minimum on all the railroads of the country, whether they be trunk lines or coal roads."

In the anthracite region the Lehigh Coal and Navigation is being quite active in bringing in men. The president of the Carbon County Exemption Board No. 1, ex-Sheriff Michael Hartneady, has received orders from the War Department to ship to Camp Meade men who have been using their mine service as justifying exemption while failing to perform their duties steadily at the mines. The men will be treated as slackers and given the full penalty. Eight of them were taken from the Lansford jail on Feb. 9, and committed to the county jail. Others are under arrest and surveillance at Lansford and Summit Hill.

The mine workers in West Virginia have had the laugh on the slacker law in that state. Every man has to work 36 hours a week or he is liable to land in jail. Lately the men have had hard time securing a day's work a week and they gather round the posted notices requiring 36 hours' work asking why they do not get it. No one begrudges them their little joke, and most of them are well enough versed to know that neither the operators nor the state officials are in any way to blame for the failure of the plan to get 100 per cent. efficiency out of the labor of the state.

In Kentucky the mine operators are expecting that the labor situation will become somewhat worse in the spring, and especially following the next draft call. The opening of the farming season is expected to call out much labor which has been employed in the mines during the winter, and the timber interests will also become more active, as some big development work is being planned in eastern Kentucky by timber operators. However, the mine operators have been paying high wages; in fact, wages that can not be touched by the timber people and farmers. It must be recalled, however, that the mine operators can not promise full employment unless the car supply shows improvement, and therefore it is expected that with the opening of spring the labor supply for the mines of the state will be low.

Operators of Fulton County, Illinois, are confronted by a shortage of miners, due to the large number of unnaturalized Austrians in that county who will not be permitted to work in the mines. The operators are trying to get miners from other parts of the state, but there is a shortage everywhere and they are not meeting with much success.

In another column we call attention to the proposed work of the Shiloh mine workers on behalf of the Community War Camp Recreation Fund. It is interesting to note the personnel of the union committee which put that patriotic resolution up to the management of the Southern Coal Co. The names were Ed Reagan, president of the local union; Gottlieb Luetcher, Bill Arey and Mr. Petre. Sometimes it is to be feared that we criticize too freely the failures of Uncle Sam in naturalization.

Foreigners are apt to comment rather favorably on the wonderful regenerative powers of our national melting pot. However, we never seem to scan anything but the horrible examples of our failures. After all we have not gone very far wrong, as many a Gottlieb and many a Giovanni will testify. The United States, like Great Britain, appears to be a horrible mistake, but a tree is justified by its fruit whether it be good or evil.

## Alabama Miners Begin Strike

On Feb. 14 a strike commenced at the mines of the Tennessee Coal, Iron and Railroad Co., and the following day there were said to be 2000 men idle. The strike has since spread further, one report saying that 5000 men were out.

On Feb. 15, mines Nos. 1, 2, 3, 7 and 10 in the Pratt division and mines 7, 9 and 10 in the Blocton division had ceased to work. The mine workers of the Republic Iron and Steel Co. at Sayreton soon followed them.

The men allege that the companies affected have failed to comply with the Garfield decision and a complaint was filed with the fuel administrator. J. R. Kennamer, the president of the district, No. 20, declares that when "we [the United Mine Workers of Alabama] accepted the agreement, we understood that all the corporations in the Birmingham district had done likewise, and if we had known that this was not the case, we, ourselves, would not have acted."

It is understood that the companies having trouble with their mine workers are observing that part of the agreement which has reference to the 8-hour day, but it is said that the companies are refusing to recognize pit committees, as also provided under the agreement, prepared by Rembrandt Peale on behalf of Dr. H. A. Garfield, accepted by the mine workers, but only granted partially by the mine operators on the imperative demand of the Fuel Administration.

Dr. Garfield has asked for information of G. B. McCormack, president of the Alabama Coal Operators' Association, and will take action as soon as the information he



desires is received. President Kennamer says that his men will comply with the agreement, and the union will not give any assistance to any man who does not obey strictly the terms of that contract.

Though domestic consumption is being greatly reduced by the advent of warmer weather, the need for coal for industrial purposes is still urgent. Coal production was quite active until the strike occurred.

### Loyalty in Illinois Mines

The loyal Illinois mine workers—and they are many—are determined to clean up the reputation of their members in Illinois. They are weary of the action of those who are collecting money, not for the war or the Red Cross, but for the defense of certain miserable Industrial Workers of the World under charges of disloyalty.

On Tuesday, Feb. 12, two men adjudged disloyal by the mine workers, were tarred and feathered at Stanton, Ill., and 100 men known or suspected of being disloyal were rounded up, compelled to kiss the United States flag and sign an oath of allegiance.

The demonstration arose from the following cause: Severine Oberdan, an Industrial Worker of the World, of Nokomis, Ill., was placed for his disloyal actions under two indictments for violation of the espionage act. He was let out on a \$2000 bond. Certain parties endeavored to raise a defense fund for Aberdan, and the Stanton miners' union voted a donation of \$100 for that purpose.

The check, however, was held up by the president, Frank Schaefer. A meeting was called to censure the president, and at this the American element, who, though strong, had let the union drift into the hands of the disloyal element, now took a hand in the dispute. As a result there was a fight. Members of the American Defense Society, deputized by the mayor, arrested several of the fighters, including Oberdan and his lawyer, John H. Metzen, of Chicago.

Oberdan and Metzen were permitted to escape the deputies, but they were seized by other men, taken to the edge of the town, tarred and feathered and driven out of town in different directions. The crowd then visited the homes of disloyalists and compelled them to kiss the flag and sign an oath of allegiance drawn up by the Staunton Branch of the American Defense Society.

Another evidence of the depth of feeling regarding the war is furnished by the action of the Shiloh mine workers. Shiloh is near Belleville, St. Clair County, Illinois, not a great way from St. Louis, Mo. A committee was appointed to meet Assistant Superintendent Fred Boettcher of the Shiloh mine and authorized to make an arrangement with him to work one day without pay if the Southern Coal Co., the owner of the Shiloh mine, would turn over all that was received for the coal so shipped and donate it to the Community War Camp Recreation Fund. The mine workers resent being regarded as disloyal and are determined by this effort to lift the imputation from their shoulders.

### Agreement of Dominion Company

The Dominion Coal Co.'s agreement with its men, made Feb. 4, is as follows:

1. All men being paid less than \$3 per day to receive 10c. per day plus 15 per cent. All datal men receiving more than \$3 and not more than \$3.75 per day, who are not eligible to benefit by the steady work bonus, to receive 15 per cent. All datal men over \$3.75 to be increased 12½ per cent.

2. Steady-work bonus to be extended to 10 per cent. instead of 5 per cent. as at present.

3. All contract rates to be increased 12½ per cent.

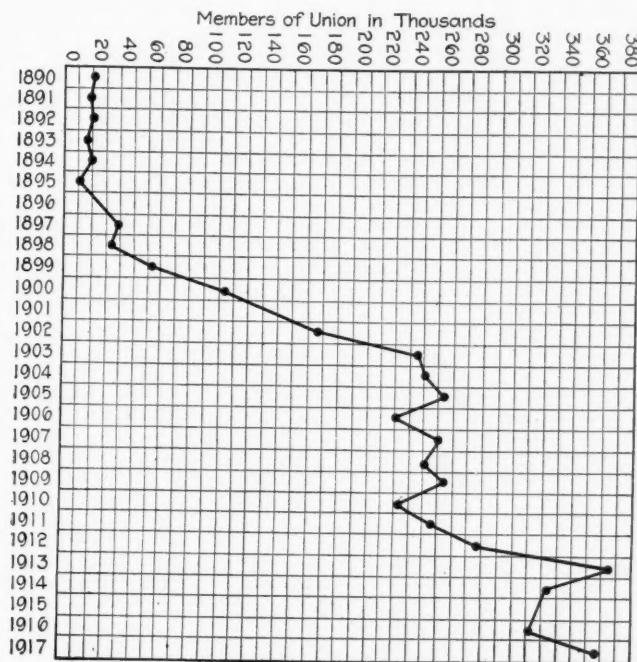
4. In the event of any perceptible change occurring in the cost of living the parties to this agreement to be willing to adjust the wage scale to conform with existing conditions, on July 1, 1918, and at the end of each six months period thereafter, upon thirty days' notice.

Note.—Where the adjustment mentioned in paragraph 1 provided an increase of 10c. per day for machine helpers the company agrees to absorb the 10c. thus paid.

The words "datal men" mean the same as "day men," the word "dataller" or "datal man" being quite generally used in England in that connection.

### Growth of Unionism in Coal Mines

The chart of union membership on this page shows how markedly union affiliation has developed since 1890. From that year till 1895 the tendency was rather downward than upward. Then came a remarkable advance which continued till 1905. Then there was a period of shakiness which lasted till 1910. Then came a second period of progress, reaching a temporary summit, or peak, in 1913. Since



then the decreases have been large, but the increases recently have been so enormous that unionism seems more prosperous today than even in 1913.

Fortunately, never has the union man been more generally possessed with the idea that a good unionist should be a good citizen. As we approach the 100 per cent. union, the organization is getting large drafts of solid, conservative men who may be relied upon to see that unionism does no harm to industry or the nation.

### Grafton Scale To Be Settled

A correspondent under date of Feb. 16 informs us that the Grafton Coal Operators' Association, composed of operators near Grafton, W. Va., will hold a special meeting at the Fort Cumberland Hotel, Cumberland, Md., to ratify an agreement made between the scale committee of the association and the district officers of the United Mine Workers of America.

The 15 per cent. increase in yardage and deadwork provided in the Washington agreement, which was made in October, was held by the mine workers to apply to the differential between narrow and wide work, this differential being paid instead of yardage. The controversy has lasted several months without causing a strike.

It now seems to be settled finally. The agreement provides that instead of disturbing the differential by increasing it 15 per cent, 10 per cent. of the differential shall be applied to all pick and machine mining rates, thus giving the miners the advantage of the increase without disturbing the differential that has existed for years.

The United Mine Workers of Lansford in the Panther Creek Valley have lodged a protest against the food administrator's "fifty-fifty" proposition on wheat bread. They say they are hard workers and require muscle-building food, bread being their chief diet.

## EDITORIALS

### What Is Labor Unrest?

THE human mind is the most complex piece of mechanism in the world. It is the master mechanism. How it works nobody knows. What it will do individually and collectively under any given conditions nobody knows—not even its owner.

The man who digs your ditches has depths you cannot plumb. You see him come and go every day and his coming and going become a part of your daily habit of thought, like the coming of your morning newspaper. Some day he doesn't blend with the scenery as you are accustomed to viewing it. Unknown to you there has been some crisis in his life; his mental depths are in turmoil; age-old questions come to the surface. Placidity becomes turbulence and you are annoyed—unless you have become similarly turbulent yourself, in which event you are not annoyed. You understand.

Your ditch digger has thousands of years of his ancestors' life and thoughts and yearnings slumbering in his soul and speaking when he is roused. He has not always been a ditch digger. Some centuries past in Asia Minor, in Greece, in Italy, along the whole line of civilization's push upward, he has been oppressor and oppressed, just as you have been—mostly oppressed, for the oppressed have always been in the majority.

One life begins and ends; but the blood-flow is continuous from generation to generation. The thousands of years behind us speak in us and to us and through us every day. The greatest thinkers, ancient and modern, affirm this.

There has been more stirring of the human depths since August, 1914, than there had been in the whole period since our Civil War. All of our accustomed grooves have been upset. In our social bearings we lack a sureness of direction. The guide posts have become weathervanes. Our placid gray matter has been set seething. The former smooth surface of our minds which reflected the current weather, the passing clouds and the orderly seasons, is turbulent; the sediment of the centuries is bubbling to the surface from the depths.

We get into channels. Channels are comfortable. They fix direction. Where you are going doesn't worry you. It suffices that you are comfortably on your way. Then something happens and destroys the channel. You and your ditch digger face each other with the eternal question of your mutual relationship in your eyes. The thousands of years back of each of you is compacted in the look. *And you couldn't phrase the question in words if you tried.* You don't try, either of you. Instinctively you know it, but to save your souls neither of you could say it.

If you tried to say it, you would both use the words you used in the channel—wages, open shop, cost of living. Especially the ditch digger would. He couldn't phrase the concentrated protest of ten thousand years in a moment of crisis any more than he could think it logically in a year in the channel. It is too big, too

overwhelming, too much a rising of his whole being. So when you ask him what he is turbulent about, don't quibble about the lack of a clear-cut answer. It can't be made; you couldn't make it yourself. But if you want his answer, get it in his reactions. Hear him give approval to war against the Kaiser; note the set of his features when the war profiteer is mentioned; watch him as he listens by the hour to the man you would call an agitator; catch his constant sanction to the opportunities open alike to everybody and his equally constant suspicion of opportunities not possible for his children. The public schools are never afraid to go direct to the people for money; the universities are.

Business based on the idea of maximum cash returns to the owner, at any cost to competitors, to labor, to the social order, to the Government, was bound to be a boomerang.

The labor unrest is the instinctive protest of ten thousand years against all this.

### Securing Clean Coal

FOR more than a year the demand for coal has been heavy. The country, normally busy, is now working at a speed never before attained. The consumption of industrial fuel is decidedly abnormal, with the result that tonnage is what has been turned out of the mines. The consumer has been begging for coal—"Any grade, any size, any car"—and bulk, not quality, is what he has received.

For months many mines have neglected preparation as never before. As a result the ash content of the coal shipped to market has increased in many instances as much as 10 per cent. or even more. Nor is the mine operator always entirely to blame for this increase. The logical and proper place to clean coal, to separate it from the slate, bone, rash and other impurities that accompany it in the coal bed, is within the mine. There is no good or adequate reason for moving large amounts of these impurities any appreciable distance from the working face. Even where coal is carefully picked by hand at the tippie it is cheaper to deposit the slate on the gob pile than on the slate dump.

Various means and methods have been tried in the past to induce the miner to load clean coal. These have varied all the way from a more or less casual inspection by the "sulphur boss" stationed on the railroad car, to various methods of random hand-sampling of the pit-car contents and a "dockage" system more or less drastic. It would appear, however, that none of the systems ordinarily employed, as stated in the article by H. A. Turner, printed on page 373, is equitable. Any good results that dockage may have secured would seem to have been largely nullified by almost endless friction, misunderstanding and enmity between mine managers and their men.



It is a well-recognized trait of human nature that men may be much more easily led than driven. The promise of adequate reward is a more powerful incentive to good work than the possibility of punishment. Dockage drives; a bonus beckons.

The chief obstacle in the path of any or all of the various means heretofore generally employed for determining the quality of any man's individual output has been the difficulty involved in truly sampling his product. The common method of selecting mine cars at random and carefully hand-picking their contents was manifestly expensive and unjust. Also, in a measure, it fostered the all too prevalent custom of the miners of loading material of known inferior quality and taking the chance of its escaping detection.

As mentioned in the article above referred to, the solution of this problem lies in mechanical sampling of a large number of pit cars each day and an equitable dockage-bonus system founded upon the results of the samples taken. The Ramsay sampler appears to have solved the first part of this difficulty; the second presents no great obstacles.

It never has been, and certainly is not now, the policy or intention of *Coal Age* through ulterior motives or in the quest of pelf to "whoop it up" for any man, any invention or the product of any manufacturer. When, however, a vital question affecting the coal industry arises and a solution for the difficulty is found, *Coal Age* would fall far short of its mission and ideals did it fail to call that solution to the attention of the coal industry. The Ramsay sampler has accomplished good results where it has been installed, reducing by somewhat over half the amount of refuse sent to the dump from the tippie.

In the stress of present circumstances clean coal only should be loaded out, for several reasons. These, as set forth by the committee on clean coal of the National Coal Association, are: Fewer cars and locomotives will be required in fuel transportation; greater efficiency of railroad locomotives, already overburdened; greater efficiency in stationary power plants; less manpower will be required to shovel coal and remove ashes.

Clean coal means fewer boilers, thus releasing part of the country's boiler-making capacity to build equipment needed for new ships; faster movement of ships, thus enabling them to be of greater service; better coke, consequently better pig iron, consequently better guns; clean coal means faster (and thus safer) passage of our transports through the danger zones.

Of course, it may be said that because dirty coal is loaded on the mine car is no excuse for dirty coal finding its way to the railroad car. It is in all respects, however, cheaper and more satisfactory to keep the impurities within the mine and never allow them to see the light of day. In other words, the gob not the dump is the place whereon to put the bone and slate.

The question of adequate mine-cleaning has always been a bone of contention. If the taking of adequate samples from a large number of mine cars will tend to reduce this friction and insure a cleaner product for shipment, apparatus for taking such samples should by all means be installed.

While it is possible that means other than the Ramsay sampler may be employed, this device has afforded satisfaction where it has been given a trial. With a

public spirit that is highly commendable, Mr. Ramsay has informed *Coal Age* that he will gladly allow any coal operator who so desires the free and unrestricted use of his invention throughout the duration of the war. When the struggle is ended, when the present stress has relaxed and conditions shall have again assumed at least a semblance of normal, he will of course expect some kind of just remuneration for the further use of his equipment.

## Cleaner Coal

THAT our Foreword of last week on "Enemies Within" was warranted, and that it, with the complaints from all sides, has led to definite action, is indicated by the following request issued within the past week by the Lackawanna County Fuel Committee of the Federal Fuel Administration for Pennsylvania to the anthracite coal operators of its district.

Consistent with the policy of the United States Fuel Administration, that the quality of coal will be improved, which policy has been indorsed by a majority of the anthracite coal operators, I am instructed to make the following request, with which it is assumed you will willingly and immediately comply.

Neither ship nor sell any coal unless it is prepared in breakers or washeries in accordance with former well established standards. The standards upon which inspection will be made are based upon the standards governing quality and size embodied in the old 65 per cent. contracts.

In addition to eliminating impurities, we would especially draw your attention to the practice of permitting a mixture of sizes, concerning which there has been much complaint. Although you may have received no complaints from your customers, still, since the President has fixed definite prices for certain sizes, you will agree with us that as an illustration, if pea coal is mixed with chestnut and sold as chestnut, you are selling pea coal at a higher price than that fixed for the same.

Out of a spirit of coöperation and desire on your part to make the purpose of this request effective, it is further requested that you immediately acknowledge this letter and indicate your willingness to comply at once.

Although the foregoing letter has gone out to the coal producers as a request, it is in such form that it practically must be considered as an order; and we believe it will result in the correction of the two evils—improper quality and mixing of sizes—to which we have before directed attention. The standards "upon which inspection will be made" being those embodied in the old 65 per cent. coal purchase contracts, if insisted upon will put the anthracite product back to the quite satisfactory quality that was maintained before war opportunities led some operators to deviate quite largely from these standards.

From the operator who has been living up to past trade customs there will come no complaint regarding the reasonableness of the Fuel Administration's request; and the murmurings or even howlings that may arise from the producers who have been profiteering, either because of improper quality or mixing of sizes, may be entirely ignored.

THE ANNUAL SUCCESS NUMBER of *Coal Age* will be issued April 13. We want articles on success in the coal-mining industry—successful installations, successful management, successful devices, successful men. Diagrams and photographs should accompany manuscript where possible. Write your story now.

## DISCUSSION BY READERS

### Rotary Dump at Shaft Bottom

*Letter No. 2*—Although a little late, the following brief description of an installation of a rotary dump at the foot of a hoisting shaft may be of interest in connection with the inquiry that appeared in *Coal Age*, Nov. 3, p. 779. Since then, as far as I have observed, there has been published in *Coal Age* but one account of a similar installation, which was contained in a letter by Carl Scholz, Nov. 24, p. 900.

The installation that I am permitted to describe was made by the Dominion Coal Co., at their No. 2 colliery, which is regarded as one of the largest, if not the largest, colliery in the world. Two seams are being worked in this shaft at the present time, the "Harbor seam," lying at a depth of 410 ft., and the "Phalen seam," at a depth of 867 ft. below the surface.

These seams are reached by a single large five-compartment hoisting shaft 11 x 37 ft. over all. Two of the four hoistways in this shaft serve the Harbor seam and two the Phalen seam, while the remaining compartment is used for pipes, cables, etc. There are, besides, two escape shafts for hoisting men and material.

Sinking was begun in October, 1899, and the regular hoisting of coal commenced in 1902, when the equipment was practically complete. Since that time the Phalen seam has produced 3½ million tons of coal. The daily output of this seam is upward of 3000 tons, while the largest daily tonnage of the two seams was 5100 tons.

The air compressor plant at this colliery has a capacity of 16,000 cu.ft. per minute.

Fig. 1 shows a view of the surface plant, including the steel tower 120 ft. in height, a steel-frame compressor house having walls of concrete of expanded metal, and a large central electric plant where power is generated for pumping purposes, colliery lighting and for operating screens and other machinery used in the plant. Power is also furnished for driving the machinery in the central shops at Glace Bay.

#### ARRANGEMENTS AT SHAFT BOTTOM PHALEN SEAM

Fig. 2 shows a plan and elevation of the shaft bottom in the Phalen seam. As here shown, the cars coming from the mine pass over the scales, where they are weighed before entering the rotary dump or tippie, two of which are shown immediately opposite the hoisting shaft. Only the hoisting compartments for hoisting coal from the Phalen seam are shown in the figure. Each mine car has a capacity of 2 tons. The tipples dump the coal into two storage chutes equipped with doors that permit the coal from either tippie to pass into either chute, as desired.

In Fig. 3 is shown a vertical section through the shaft and the two tipples. The chute has an inclination of 50 deg. and holds from 7 to 8 tons when full. As shown in the figure, there is a swinging door at the foot of the chute. This is kept closed by a spring latch except when coal is being loaded into the hoisting tank,



FIG. 1. STEEL TOWER AND SURFACE PLANT, DOMINION COAL CO., NO. 2 COLLIERY, GLACE BAY, N. S.



which is shown in position at the foot of the shaft. This tank also has a capacity of from 7 to 8 tons; but the normal load is 6 tons, or the contents of three cars.

The entire operation is automatic, from the time the coal leaves the scales until it is dumped onto the

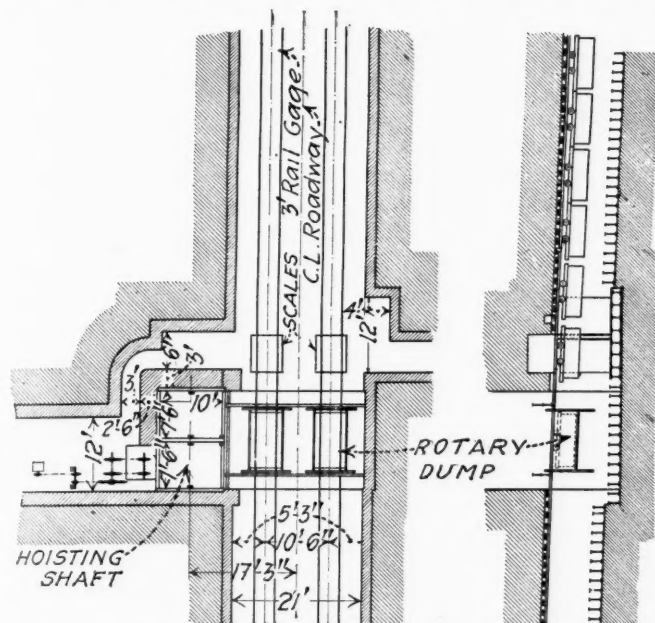


FIG. 2. PLAN AND ELEVATION, SHAFT BOTTOM, PHALEN SEAM

screens at the surface. The descending cage, striking a lever, releases the spring latch that secures the door of the chute. This door is counterbalanced and kept closed by a weight suspended from a chain, which passes over a pulley and is drawn tight across the shaft bottom, in a position where the falling cage, striking it, pulls the door down, allowing the coal to slide into the hoisting tank. As the tank again ascends the shaft, the door is released and closed by the counterweight, while the spring lock holds it fast until the next tank strikes the lever, in its fall in the shaft, and the operation is repeated.

Each hoisting tank is mounted on a pivot very much as a self-dumping cage. As shown in the figure, it has an inclined floor, which permits of the easy discharge of the coal at the surface when the latch-lock is released. The combined tank and frame in which it is held weighs about 10 tons, making the entire load on the rope, in hoisting, about 18 tons. In loading the tank at the foot of the shaft a little coal is apt to fall outside of the tank, but this amounts to less than 4 tons a day. It is caught in a hopper and raised to the level of the shaft bottom by the conveyor shown in Fig. 3. The entire equipment is operated by compressed air and makes it possible to handle a very much larger daily tonnage than would be possible by any other means that would be both practicable and economical.

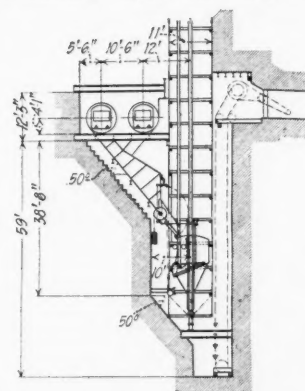


FIG. 3. SECTION THROUGH SHAFT AND TIPPLE

Sydney, N. S., Canada. Dominion Coal Co., Ltd.

## Requirements in Mining Law

*Letter No. 1*—The new mining law, which went into effect in the State of Washington, June 7, 1917, and to which reference has been made in *Coal Age*, requires the certification, by examination, of the following mine officials: State mine inspectors, mine foremen, assistant mine foremen and firebosses.

The first examination for mine inspector's certificate was held this year in Seattle, the examining board being composed of one mining engineer, one mine manager and one practical coal miner, as the law requires. The law provides for the granting of certificates to candidates who make an average of 75 per cent., and specifies that practical experience, worthiness and general fitness shall be credited with 40 points; the written examination, 40 points; and the oral examination, 20 points.

### CERTIFICATION LAW IN THE STATE OF WASHINGTON

The law further requires that the candidate must make affidavit that he is a citizen of the United States and of the State of Washington; is 30 years of age and has had at least five years' practical experience in mines in the United States, including three years in the State of Washington. He must also present the affidavit of two citizens of the state, testifying to his good character and temperate habits.

These requirements and that of the candidate being in good physical condition would seem to cover the case completely; but the real practical test lies in the power given to the examining board of passing arbitrarily on the fitness and experience of the candidate. The allowance of 40 points to cover this feature of the candidate's qualifications places in the hands of the examining board the means of arbitrarily disqualifying any candidate they may choose and who, perhaps, has passed an otherwise excellent examination in respect to his knowledge of practical mining, including as much of the theory and principles of coal mining as the board sees fit to require.

### WEAK POINTS IN THE STATE MINING LAW

Without casting any reflections on the present examining board, in this respect, it can be said that human nature is much the same everywhere and arbitrary power based on individual judgment, which is often apt to err, may result in doing an injustice to a worthy candidate. This may occur through prejudice or a biased judgment.

The law, in this respect, would be less open to criticism if it specified a given number of points per month or per year and a minimum length of time that the candidate must have been employed or had charge of certain work. This would enable an examining board to give each candidate a fair rating and relieve the board of the exercise of arbitrary judgment, which is a variable factor at the best.

The same board, with the addition of the state mine inspector, is authorized to hold the examinations for mine foremen's and firebosses' certificates. Candidates for these positions are likewise required to make an average of 75 per cent. in order to secure a certificate.

In the case of mine foremen, 40 points are allowed for practical experience, worthiness and general fitness,

while 40 points are credited to the oral and 20 points to the written examination. In the fireboss examination, 50 points are allowed for practical experience, worthiness and general fitness, while 30 points are allowed for the oral and 20 points for the written examination. Here again, the law would seem to be not sufficiently specific.

It may properly be asked, Why would it not be more just and fair to allow a credit of 10 points for each year of practical experience and require a minimum of, say five years of such experience in the case of candidates for the position of fireboss and four years for that of mine foreman? This would give every candidate his proper rating, in respect to practical experience, worthiness and fitness.

RALPH W. MAYER.

Roslyn, Wash.

## Seasonal Freight Rates

*Letter No. 2*—Kindly allow me to correct a misstatement in my previous letter on this subject, *Coal Age*, Jan. 26, p. 209, which was probably a stenographic error. The production of hard and soft coal was given as 600,000, instead of 600,000,000 tons.

At the same time, in this connection, allow me to make a specific recommendation of seasonal rating, in the transportation of coal, that I believe would result profitably to all concerned. I would suggest the following:

March to June, inclusive, rates to be 20 per cent. less than the present tariff.

July to October, inclusive, the present tariff to be enforced.

November to February, inclusive, rates to be 20 per cent. higher than the present tariff.

In my opinion, the adoption of these rates would give the railroads more net revenue from the transportation of coal, while it would justify large storage piles at steam plants and enable dealers to store winter supplies at points near to large consuming centers, from which deliveries could be made by mail or motor truck as required.

R. T. MCKEEN.

Chicago, Ill.

## Surveying and Mapping

*Letter No. 3*—I certainly have enjoyed reading the articles by W. L. Owens, *Coal Age*, Dec. 8, p. 960, and the letter of P. A. Arnold, Dec. 29, p. 1109, on the subject of "Surveying and Mapping." The points brought out by these writers are interesting, although I find that each of the systems they suggest differs from my own method. The latter appeals to me as being better adapted to my particular requirements, which are clearly different from those described by these correspondents.

Mr. Owens has drawn attention to the fact that there are many little details of surveying and mapping, which are used by different engineers in their practice and which would prove helpful to others if they were discussed. In the hope that there may be something of interest in my own system, I will describe it briefly.

It is true that conditions in different mining localities must largely determine the methods employed by engineers, in surveying mine workings. The mines with

which I have been associated, in recent years, are worked on the well-known panel system, or some modification of that system. All entries and rooms are driven on sights given by the engineer.

My practice has been to designate every station either by a number or a letter. Letters are used only when a station is located in a room, which is rare. All entry stations, as far as possible, are located on the true course of the entry, which is not permitted to deviate from that course, except in rare instances. Stations on the main entry are numbered continuously, in the usual manner.

Each pair of room entries has its own set of numbers starting from 1, odd numbers being used on the first entry of each pair, while the even numbers are used on the second entry. This makes the station numbers, as being odd or even, correspond to the number of the entry, in the same respect. For example, while stations on the first, third or fifth north are numbered 1, 3, 5, etc., those on the second, fourth, or sixth north, are numbered 2, 4, 6, etc.

Another peculiarity of this system is that, on room entries, a station is located opposite the mouth of each room to be turned later. Thus, by the station number it is possible to tell the number of rooms turned on the entry, up to that point. I realize, of course, that this system could not be used to advantage where the coal is not regular, as it is generally in this district. When it is necessary to locate a station midway between two rooms, such station takes the number of the last preceding station with the suffix  $\frac{1}{2}$  added.

It is obvious from the foregoing that the continuous numbering system could not be used in my method, in view of the fact that too high numbers would result, owing to the multiplicity of stations. The system that I have described, however, has advantages that are worthy of note.

Since all the stations are located on the true course of an entry, there is no difficulty in obtaining a back-sight should any one of these stations be lost. Rooms are necked by the roomboss, at regular distances apart on the rib, which makes it possible for the engineer to locate the stations in a convenient position to give sights in the rooms when these are turned. The station at the last roomneck on an entry becomes the outby spad for a pair of entry sights.

### OBJECTIONS TO USE OF CONTINUOUS NUMBERS

It occurs to me that one disadvantage, in the use of continuous numbers, is the possible failure of the transitman to make a note of the last number used in a survey. I have frequently hunted through transit books to find the highest number recorded, before starting a new survey. The use of distances to designate station numbers, while possessing certain advantages, is open to the objection that the station number cannot be recorded until the distance is measured, and it is impossible to refer to such station in the side notes.

When reading Mr. Arnold's reference to the inconvenience of station numbers not indicating distances to such stations, I wondered if it would not have been possible, in the case he cited, to have scaled the distance from the mine map, for the purpose intended. I have never experienced the slightest trouble growing out of the repetition of numbers on different entries.



Before closing, let me say that the carrying of a paint pot for numbering stations on the rib, or marking them on the roof, seems to me an unnecessary waste of time and material. At least, it would be such in my system. The proper referencing of stations on main entries, in the notes, should be sufficient to locate the same without delay, if they are still in place.

In respect to the use of free-hand or ruled lines, in mapping, it is my belief that there is more realism in free-hand work, although ruled lines, where not too broken, may present a more artistic appearance. I use but a single color on maps and designate the extension of the workings each fiscal year by circumscribing them with a fine dark-green line.

A separate tracing is then made showing only the depletion with dotted lines for the entries. Figures showing the yearly and total depletion are inscribed within their proper areas. Elevations taken every 50 ft. on the entries are entered on the map in their proper location. I would like to inquire why so many engineers adopt the method of closing the ends of rooms and entries that are still working, which makes it impossible to distinguish such live workings from those that have been abandoned.

W. E. BUSS,  
Vincennes, Ind. Mining Engineer.

## Relative Size of Intake and Return Airways

*Letter No. 5*—Referring to the question that has been raised as to whether the intake or return airway of a mine should have the larger sectional area, I want to say that the correct answer to this question is the one given in *Coal Age*, Dec. 15, p. 1033.

In my opinion the main haulage road of a mine should never be made the main airway, either intake or return; but separate entries or air-courses should be provided for this purpose. When the main haulage road is made the intake airway for the mine much trouble is bound to result from ice in the winter time, and it will often be necessary to delay hoisting operations, in the shaft or slope, in order to cut away the ice to allow the passage of the cages or cars.

To free a shaft or slope of ice may cause a delay of from 30 minutes to an hour, in the morning. Moreover, another objection is the fact that motormen and drivers are compelled to work in a strong draft of air when the haulage road is made the main intake for the mine. This is a particularly bad feature when the thermometer registers zero or below.

### WHEN HAULING ON THE RETURN AIR

There is also equal objection to making the haulage road the main return airway for the mine. In a gaseous mine, of course, haulage cannot be performed with safety on the return air current. In any event, however, there are always noxious gases produced in the mine, in greater or less volume; and when the return current becomes charged with these gases it is not only unhealthful for the drivers whose duties compel them to work there, but much difficulty is experienced by them in holding a light when hauling against such a current.

Also, it must be remembered that a large mine, circulating a great volume of air, would require a high

velocity of the air current on the main airways leading in and out of the mine, and this would frequently be in excess of the limit specified in the mining law, unless a separate air-course was provided.

In my judgment the better plan is to provide one main intake airway of ample size and two main return airways, one for each side of the mine, in addition to the haulage road, especially if the mine is gaseous. An overcast should then be built at the mouth of each pair of cross-entries, as early as their development will permit, to conduct the air over the haulage road and return airway on each side of the mine, and provide each section with a separate air split. Sufficient air can be supplied to the haulage roads through regulators, so as to comply with the requirements of the Pennsylvania mining law, which states that haulage by electric locomotives must be performed on the intake air.

Bolivar, Penn.

W. H. CLARK.

*Letter No. 6*—There is no doubt in my mind that a trip of cars moving in an airway will have an appreciable effect on the resistance that the airway offers to the circulation. The amount of resistance offered will depend on the relative size of the cars and the airway in which they are moving.

Where large cars are used in comparatively small airways the effect would be considerable. However, this is only for a comparatively short period of time while the cars are passing. Where a good clearance is provided at the side of the track, as has been suggested as one of the requirements for safety, the effect of the moving cars on the resistance of the mine would be much less.

I recall one instance where the miners, in a particular section of the mine where the circulation was restricted by cars standing on the entry, refused to work until these cars were removed and the entry left unobstructed.

### RETURN AIRWAY SHOULD BE THE LARGER

It has been shown, already, that the volume of the return air current is generally greater than that of the intake, owing to its higher temperature and the presence of gases generated in the mine. In addition to this, let me say there is a further slight increase in volume, because of the decreased pressure in the return airway. Since air always moves from a point of higher pressure to a point of lower pressure, it follows that the pressure on the intake airway is always greater than that on the return.

Taking all of these facts into consideration, it is my belief that the circulation in a mine will be greatly improved by making the area of the return airway greater than that of the intake, even allowing that the latter is the haulage road. The larger area of the return airway will reduce the velocity of the passing air and decrease the resistance, and less power will be required to produce the circulation. This, of course, does not affect the resistance offered by a trip of cars, but lessens the entire mine resistance. There is no question but all will agree that in a mine where haulage is performed on the return airway the latter should have the larger sectional area.

In his letter on this subject, *Coal Age*, Jan. 19, p. 160, W. H. Noone raises the question of whether mine

haulage should be performed on the intake or on the return airway. This question has often been asked; and, while opinions differ, I believe the general belief is that the haulage road of a gaseous mine should be made the intake airway for the mine. But, as Mr. Noone has pointed out, this necessitates the use of an exhaust fan to avoid having doors on the main haulage road.

While the exhaust fan possesses the advantage that the foul gases of the mine do not pass out by the haulage road, what is of greater importance is the fact that the mine is ventilated under a pressure less than that of the atmosphere, so that if the fan should stop, the increase of pressure in the mine would hold back the gases for a time. There is, however, the disadvantage that work on the haulage road is made very uncomfortable for the drivers or motormen, and there is frequently much trouble from ice that forms in the hoisting shaft in winter.

The force fan is especially adapted to nongaseous mines and possesses the advantage that work on the landing or shaft bottom is far more comfortable; the shaft is kept free from ice; there is less liability of falls occurring on the haulage road, and less moisture is absorbed by the return current on that road.

Bluefield, W. Va.

D. H. PERDUE.

## Clearing a Heading of Gas

*Letter No. 8*—The suggestion made by "Fireboss" *Coal Age*, Nov. 10, p. 823, in reference to handling a body of gas accumulated at the face of a heading by hanging a canvas on the return entry 90 ft. back from the face is hardly worthy of consideration.

If the idea was that, by choking the air current there would be sufficient carbon dioxide formed to render the gas inexplosive and make the place safe to enter, that is wholly out of the question. It is up to the fireboss to clean out the gas.

The only practicable plan to accomplish this is to extend a line of brattice from the last crosscut toward the face. My experience has taught me that to move the gas from the head of an entry it is often necessary to increase the pressure of the air current where it bears upon the gas.

This may have been in the mind of the fireboss who hung a curtain in the return airway; but if so let me say that he began at the wrong end. As suggested by "Gas Inspector" in his letter Jan. 19, p. 159, it is often necessary to extend the canvas at the end of the brattice so as to deflect the air against the gas.

My plan when a body of gas is not easily moved from the face of a heading is to gradually widen the air space behind the brattice as it approaches the face. This is done by carrying the line of brattice over toward the intake side.

By so doing, the air passing around the end of the canvas is given a greater velocity at the very point where it is needed to drive out the gas. At the same time, the resistance to the passage of the air is not materially increased. This plan has worked successfully in a number of instances, and is one that I always advise following in such cases.

R. W. LIGHTBURN.

West Leisenring, Penn.

[This letter will close the discussion of "Clearing a Heading of Gas."—Editor.]

## Shaft vs. Slope Opening

*Letter No. 5*—I was glad to find, in reading *Letter No. 3* by "Ajax," *Coal Age*, Dec. 29, p. 1110, that the favored a shaft opening, under the conditions described by Thomas Harris, Sept. 29, p. 551. Being interested to ascertain more particularly the character of the overlying strata, in this case, I wrote Mr. Harris and received from him the following information:

Starting from the surface there is 28 ft. of surface clay underlaid with 30 ft. of hard fireclay, beneath which is 60 ft. of sandstone. This makes the total depth of overburden, as stated, 118 ft. in thickness. I regret that Mr. Harris did not state, in his letter, the thickness of the coal seam, which I will assume is 6 ft. In connection with this inquiry, permit me to present the following estimate of the required size of shaft, which may be of interest.

### ESTIMATING THE SIZE OF SHAFT REQUIRED

I will base my calculations on a total output of 1200 tons of bituminous coal, in an 8-hr. working day. Allowing 5 per cent. for unavoidable delays in haulage and hoisting, the actual time of hoisting is  $0.95(8 \times 60) = 456$  min., which gives an average rate of  $(1200 \times 2000) \div 456 =$  say 5260 lb. of coal delivered each minute. For this depth of shaft, the speed of hoisting may be taken as 12 ft. per sec., and the time of making a single hoist is then  $118 \div 12 =$  say 10 sec. Allowing 10 sec. more for caging each hoist, gives for the total time per hoist 20 sec., which is three hoists per min. The weight of coal hoisted at one time is, therefore,  $5260 \div 3 =$  say 1750 lb.

Taking the average specific gravity of bituminous coal as 1.3, its weight in the solid is  $62.5 \times 1.3 = 81.25$  lb. per cu.ft. When this coal is broken, it will occupy, practically, two-thirds more space than in the solid form. That is to say, 3 cu.ft. of solid coal will make 5 cu.ft. when broken. The weight of broken coal is, then,  $81.25 \times \frac{8}{3} =$  say 48 lb. per cu.ft. When hoisting one car at a time, this will require a capacity of  $1750 \div 48 =$  say 36.5 cu.ft.

Now, taking the inside width of the car as 2 ft. and the depth of the coal, including topping, 30 in., or  $2\frac{1}{2}$  ft., the area of the cross-section through the coal would be  $2 \times 2\frac{1}{2} = 5$  sq.ft. The length of the car must then be  $36.5 \div 5 = 7.3$  ft., or 7 ft. 4 in. Adding to this length 4 in. for the two ends of the car and allowing 6 in. at each end for the bumpers, gives a total length out-to-out of bumpers of 8 ft. 8 in.

To ascertain the width of the shaft in the clear, it will be necessary to allow 8 in. of clearance on each end of the car, which makes the total width of the shaft in the clear 10 ft. In estimating the length of the shaft, allowance should be made for four 4-in. guides, a manway or pumpway 4 ft. wide, and two hoistways of the same width, in the clear, between the guides and buntions or partition, making the total length of the shaft 14 ft. in the clear.

In laying out the shaft, allowance must be made for the thickness of the curbing in calculating the necessary size of the excavation. If the shaft is to be lined with concrete walls 12 in. in thickness, the size of the excavation, in this case, will be  $12 \times 16$  ft.

Rawdon, Quebec, Canada.

C. McMANIMAN.



## INQUIRIES OF GENERAL INTEREST

### Mining a Thick Inclined Seam

The following question was submitted to candidates in a recent mine foreman's examination, held at Price, Utah. As it is an exceedingly practical and, at the same time, difficult question, calling for experience, knowledge and good judgment, may I ask that it be submitted for discussion in the columns of *Coal Age*.

Ques.—Describe your method of extracting the pillars in the following seam of coal: The seam is 28 ft. thick and pitches about 12 per cent. The room entries are driven across the pitch and the rooms turned at an angle of 45 deg. off the entry. The rooms are driven 20 ft. wide with a 70-ft. pillar between them. The lower half of this seam, 14 ft. in thickness, is worked advancing, the remaining 14 ft. being left for a roof, in the first working. In places, there is a hard sandrock on top of the coal, while in other places there is from 10 to 20 in. of rather brittle shale. There are no partings in the seam, and the coal is rather hard. A barrier crosscut is made across the top of the rooms, 350 ft. from the entry.

The question has since provoked much discussion here and a variety of opinions have been advanced. The discussion in *Coal Age* will be read with interest.

———, Utah.

STUDENT.

In order to secure the greatest safety of the men and the largest percentage of extraction of the coal, *Coal Age* would suggest that this seam might be worked on the retreating method, say in four benches, each 7 ft. in thickness. It would seem to be a difficult matter to secure even a reasonable percentage of extraction by the plan outlined in the question. Briefly explained, the following plan might be expected to give good results:

Assuming that the mine has been opened by a shaft or slope and headings driven to the right and left in the lower bench of the seam, butt headings are now turned to the rise, say 100 yd. apart and driven up the pitch about the same distance. These headings are then connected by driving crosscuts at the face. All of the work, thus far, is done in the lower bench of the coal. The work of retreating is then started by taking skips along the face of the 300 ft. pillar, and when this has advanced, say 10 or 15 yd., extraction should begin in the next upper bench of coal, the workmen standing on the refuse or broken coal of the lower bench. In this manner, the work is carried back to the gangway in successive stopes or benches. We shall be glad to have the question fully discussed by our readers, with sketches.

### A Simple Question in Haulage

The following question was presented at one of our recent meetings and has since attracted considerable attention, as its solution seems to require considerable mathematics with which most of us are unfamiliar. The question is an everyday practical question in mine haulage. It is as follows:

A trip of 25 cars drawn by a locomotive was just starting from the bottom of a shaft. It had gained a

uniform rate of speed, when the mine foreman in the rear car of the trip handed a coupler boy a note, telling him to run ahead and give it to the motorman.

Now, assuming uniform rates of speed for the trip and the boy, the question is, What distance would the boy have to run if, on handing the note to the motorman, he turned back at once and ran at the same speed till he reached the rear car again, at the moment that car arrived at the point where the locomotive was when the boy started to run forward with the note? In other words, while the boy was running forward and back, the trip had advanced its full length.

Perhaps *Coal Age* can give us a simple solution of this question, in arithmetic. The old saying is that "All work and no play makes Jack a dull boy," and I believe that an example of this kind will be of interest to mining students.

STUDENT.

Townley, Ala.

Although many would be tempted to use formulas in the solution of such a question, it is capable of a more simple solution by arithmetic. It is necessary, in doing so, however, to give concrete values to the length of the trip and the speed of the locomotive and that of the boy.

For example, taking the length of the trip of 25 cars and locomotive as, say 200 ft., and assuming that this trip is hauled at a speed of 8 ft. per sec., while the boy runs at a speed of 14 ft. per sec., it is evident that the trip, will move through a distance equal to its length in  $200 \div 8 = 25$  sec.; and, in that time, the boy will run  $25 \times 14 = 350$  feet.

By the use of formulas, the solution is as follows: Let  $l$  equal length of trip,  $x$  the distance the locomotive has advanced at the moment when the boy hands the note to the motorman and call the speed of the trip  $v_1$ , and that of the boy  $v_2$ .

Then, since the trip advances a distance  $l$  equal to its entire length, while the boy runs the full length of the trip and twice the distance  $x$ , or  $l + 2x$ , it is evident that the time taken can be calculated by dividing the length of the trip by its speed, or the distance the boy runs by his speed of running. And, since the time is equal, in either case, we have

$$\frac{l}{v_1} = \frac{l + 2x}{v_2}$$

$$x = \frac{l(v_2 - v_1)}{2v_1}$$

Finally, substituting the values  $l = 200$  ft.;  $v_1 = 8$  ft. per sec.;  $v_2 = 14$  ft. per sec., we have, for the distance the locomotive has advanced when the boy hands the note to the motorman,

$$x = \frac{200(14 - 8)}{2 \times 8} = \frac{200 \times 6}{16} = 75 \text{ ft.}$$

In that case, it is evident that the boy runs a distance of  $200 + 2 \times 75 = 350$  ft.

## EXAMINATION QUESTIONS

### Utah Mine Foremen's Examination, Held at Price, Nov. 7, 8, 1917

(Selected Questions)

**Ques.**—Why is a current of fresh air necessary in a coal mine?

**Ans.**—In order to keep the passageways and working places in a mine healthy and in a safe condition for work, it is necessary to maintain a circulation of fresh air that will dilute, render harmless and sweep away the noxious gases produced by the breathing of men and animals, burning of lamps, combustion of powder, fine coal and slack and the decay of timber and other organic matter. Not only is the oxygen of the air constantly consumed, in the operations performed in the mine, but a portion is also absorbed by the freshly exposed faces of coal, which makes a new supply necessary in order to sustain life and insure the health of the miners.

**Ques.**—What is the principle of the safety lamp; or, in other words, what makes the so-called safety lamp safe?

**Ans.**—The principle on which the safety of the lamp depends is the cooling effect exerted by the wire gauze on the gas burning within the lamp chimney. When a safety lamp is introduced into an atmosphere of inflammable or explosive gases, the gas-charged air enters the combustion chamber of the lamp and is ignited and burned, but the flame of the burning gases is prevented from passing out through the mesh of the gauze, because the tiny streamlets of gas passing through the mesh are cooled below the temperature of ignition, and the flame is extinguished.

The upper portion of the lamp chimney where the greatest danger exists is further protected by the extinctive atmosphere of burnt gases there confined. The former principle, depending on the cooling effect of wire gauze was discovered by Sir Humphry Davy, in 1815, while the latter relating to restricting the outflow of the burnt gases at the top of the chimney was the characteristic feature of the Stephenson lamp, which antedated the Davy lamp a few months only.

**Ques.**—When does a safety lamp become unsafe?

**Ans.**—A safety lamp is unsafe when improperly handled, its parts improperly assembled, or any part is omitted or defective. A safety lamp should never be exposed to too strong a current of air containing gas. The lamp should be carried in an upright position and never tilted so that the wick flame strikes the gauze. A safety lamp should not be exposed to an explosive mixture longer than is necessary to detect the presence of the gas. The lamp is further unsafe when it is not properly cleaned or the gauze has become clogged with dirt and grease.

**Ques.**—How many wires are there in 1 sq.in. of gauze, in a safety lamp?

**Ans.**—What is known as the "standard wire gauze," recommended by Davy and used in Great Britain and

this country, contains 28 wires to the inch, which makes  $28^2 = 784$  openings to the square inch.

**Ques.**—(a) What is the difference between a "squeeze" and a "cave"? (b) To what cause or causes can squeezes in mines be traced?

**Ans.**—(a) When a cave takes place in a mine, the roof is broken and falls in larger or smaller masses, depending on the character of the material. On the other hand, a squeeze is a gradual settlement of the roof or a heaving of the floor, as the case may be, while the supporting pillars of coal are crushed by the weight of the overlying mass.

(b) Squeezes are caused by leaving too small pillar supports when taking out the coal, or attempting to maintain too large a standing area instead of drawing the timber from abandoned places and allowing the roof to fall. A squeeze may be started by reason of the failure to maintain a regular breaking line when drawing back the pillars in a section of the mine.

**Ques.**—A haulage road is 100 yd. long, with a semi-circular roof. The road is 9 ft. wide at the bottom and the sides rise perpendicularly to the height of 3 ft. where the semicircle begins. How many cubic yards of material have been taken out?

**Ans.**—The area of the rectangular portion of this roadway is  $9 \times 3 = 27$  sq.ft. The area of a semicircle whose diameter is 9 ft. is  $\frac{1}{2}(3.1416 \times 9) = 31.8$  sq.ft. The total sectional area of the airway is therefore 58.8 sq.ft., and its cubic contents,  $3 \times 100 \times 58.8 = 17,640$  cu.ft.; or,  $17,640 \div 27 = 653\frac{1}{3}$  cu.yd.

**Ques.**—A piece of iron measures 14 in. long by 7 in. wide by 5 in. thick. Find the length of a bar having the same contents and 1 sq.in. in section.

**Ans.**—The cubic contents of the iron is  $14 \times 7 \times 5 = 490$  cu.in. The length of a bar 1 sq.in., in cross-section, and having the same contents is, therefore,  $490 \div 12 = 40$  ft. 10 in.

**Ques.**—An airway 60 yd. long, 6 ft. high and 8 ft. wide is full of methane. What quantity of air must be added (a) to render it explosive; (b) to bring it to the highest explosive point; (c) to so dilute it as to render it nonexplosive?

**Ans.**—The volume of the gas filling this airway is  $3 \times 60 \times 6 \times 8 = 8640$  cu.ft. (a) Pure methane first becomes explosive, by the addition of air, when the volume of air to gas is 1:5; hence, to render this volume of the gas explosive will require  $5 \times 8640 = 43,200$  cu.ft. of air.

(b) The maximum explosive point of pure methane is reached when the proportion of gas to air is 1:9.57; and the quantity of air that must be added to produce this result is, therefore,  $9.57 \times 8640 = 82,684\frac{1}{2}$  cu.ft.

(c) To so dilute this gas as to render the mixture of gas and air nonexplosive requires that the proportion of gas to air shall be 1:13; and the quantity of air required to produce this result is, therefore,  $13 \times 8640 = 112,320$  cu.ft. of air.



# COAL AND COKE NEWS

## Harrisburg, Penn.

A. C. Campbell, county fuel chairman of Luzerne County, and who is also chairman of the committee to investigate impurities in anthracite coal, has made a statement, explaining and justifying the comparative tardiness and necessary slowness of these measures. He points out that he was neither provided by the administration at Washington with funds for the making of thoroughgoing inspection, nor clothed with sufficient power until recently to make absolute a prohibition of the alleged adulteration. The investigations have therefore been made by voluntary aides, and he has been authorized by Dr. Garfield to employ executive authority to make binding the request for a cessation of the practice.

An important ruling, affecting two mine-accident cases and reversing a decision of the Workmen's Compensation Board, was handed down by Judge Strauss (Luzerne) on Feb. 15, in which the court held that a negligent act by an employee in the course of his employment could not defeat the right of compensation.

The cases are those of Julia Gurski and Mary Sanjeski, of Nanticoke, against the Susquehanna Collieries Co., a claim under the compensation act for the deaths of their husbands. Frank Gurski and his laborer, who were suffocated by entering an abandoned section of defendant's mine on Oct. 19, 1916, to secure their mining tools.

The referee found that the defendants died as the result of violence sustained by an accident in the course of their employment upon the defendant's premises and that their presence was required in the mine at the time. The referee concluded that the plaintiffs were entitled to compensation.

An appeal was taken by the defendant company to the Workmen's Compensation Board, which held in substance that the two men were warned not to enter the portion of the mine where the accident occurred; that they were not engaged in duties nor furthering any business of their employer when they went to the place where the accident occurred, and that they entered the danger despite warnings to secure their own tools.

Judge Strauss, however, takes a different view of the law and the facts, and in the Gurski case says in part: "Had this employee while on his way to work on Oct. 19 gone to a hardware store, not on the employer's premises, to purchase a mining machine, the employee would have been simply furthering his own business and convenience and his act would not have been in pursuance of his employment. But after the employee had reported for work at 6:10 that morning, entered upon the premises by going down into the mine which was under the control of the employer, his right to compensation was not limited to the moments of his actual labor or when he was in some way directly furthering the business of the employer, though not within the special lines of his employment.

"He was entitled to compensation though not so engaged, the sole statutory requirement being that his injury shall result from the condition of premises under the control of the employer or upon which the employer's business or affairs are being carried on while the employee is there in consequence of his employment. The employee shall be entitled to compensation 'without regard to negligence' when he brings himself within the terms of that section.

"This employee by going into a dangerous part of the mine was negligent, but the very purpose of the Workmen's Compensation Act was to transfer to the industry the risk of employment; and among risks of employment the fact is to be considered, well known from general experience, that almost every employee will be negligent at some time and will take some chances, especially so in a hazardous business. Probably in the great majority of cases the chances taken do not result injuriously; but when they do the policy of the law as expressed by this statute, having

regard for human imperfections, no more in evidence among employees than among employers, is to compensate the employee and throw the burden of financial loss upon the business."

Judge Strauss concludes his lengthy and interesting opinion by saying: "Junkin vs. Lehigh Valley Coal Co., 3 Dept., Rep. 2903, is very closely analogous to the case now at bar, where it was held that the employees who were specially directed to go to chamber No. 36, and who after they had performed their work there went into chamber No. 27 where an explosion occurred. 'If it be that they went into room 27 against orders fully understood and appreciated by them, this would be but a negligent act on their part, which of itself could not defeat the right to compensation if at the time of the accident they were in the course of their employment on the premises of the defendant.'

"So was Gurski 'in the course of his employment on the premises of the defendant at the time of the accident.' He had reported for work as already stated, at 6:10, and had gone into the mine and was on his way to work in the mine, diverting only to get a tool in another portion of the mine. 'Though his orders not to go (into the blocked off portion of the mine) may have been fully understood and appreciated by him, this would be but a negligent act on his part.'

"Now, Feb. 15, 1918, the judgment of the Workmen's Compensation Board is hereby reversed and judgment is directed to be entered in favor of the plaintiff according to the recommendation of the referee."

The case of the laborer involves exactly the same points.

## PENNSYLVANIA

**Lansford**—The Lehigh Coal and Navigation Co. is tearing down its old No. 11 breaker, preparatory to erecting a much larger and modern one.

**Hazleton**—More than 1000 samples of coal sold through the Lehigh region have been taken by Max Friedlander, local fuel administrator, and analyzed to learn what proportion of slate they contain. It is charged that much of the fuel sold here has been mixed with a big proportion of waste, which passed muster in the great rush to relieve the coal shortage.

**Coaldale**—By an explosion of gas at the Lehigh Coal and Navigation Coal Co.'s colliery, on Feb. 12, four miners were so badly burned that they were taken to the state hospital.

**Mauch Chunk**—Orders have been received from the war department by Sheriff Michael Hartneady, president of the Carbon County exemption board No. 1, to ship the slackers employed at the mines in the Panther Creek Valley to Camp Meade. The men will be treated as slackers and given the full penalty of their crime. Several of them are now under surveillance at Lansford and Summit Hill.

**Upper Lehigh**—The M. S. Kemmerer Coal Co., which operates the Sandy Run mine, on Feb. 13 announced that it has one man digging coal who earned \$3100 to 1917. As he is a married man, he must pay income taxes on \$1000. Many miners, railroaders, carpenters and machinists here are included in the provisions of the income tax law, as their wages have increased considerable in the last few months of war-time demands on labor.

**Scranton**—For more than four hours a team of horses was buried in a mine cave in the 1900 Block, Cedar Ave., close to the National colliery of the Delaware, Lackawanna and Western R.R., Coal Department. The driver was going to the breaker when the earth gave way beneath the horses, both animals being carried down many feet. Men employed at the colliery were sent to get the horses out. Both animals were badly scratched but not seriously injured.

**Inkerman**—Upon the filing of a bill in equity a preliminary injunction was granted in the suit of Charles P. Holden against

George J. Llewellyn and Frank Carlucci, contractors of Scranton, to restrain the defendants from interfering with or entering upon lands of the prosecutor, which contains a culm bank and mine drifts, and to require the defendants to account for the coal and material removed. The plaintiff in his bill alleges that he has been in possession of the culm bank for many years, and that the defendants have entered upon the tracts and removed about 1000 tons of coal and culm.

## Bituminous

**Huntingdon**—Owing to the growing scarcity of coal, workmen have begun tearing down more than 100 coke ovens at the Derry plant of the H. C. Frick Coke Co. They will be taken to Saxton, Bedford County, which is in the heart of the Broad Top bituminous district.

## WEST VIRGINIA

**New Martinsville**—A company of local men have recently secured about 500 acres of coal in this vicinity along with the old mine on the Anthony estate. The new company will be known as the Mountain Coal Co. and will be incorporated in this state. A modern tippie will be erected as soon as the work can be done and good rail facilities will enable the company to expand its business and equip a modern mine.

## OHIO

**Jobs**—A new mine, under lease from the Buckeye Coal and Railway Co., was opened last week on the Hocking Valley R.R., a short distance from the large Jobs mine of the Buckeye company. The 200 acres included in the property is under lease to the Douglass company. The new mine has been christened "Liberty," in honor of the war being fought for democracy. The output will be about 250 tons daily.

**Athens**—The Jewell Coal Co. has started loading from its new mine, located on Bailey Run, where No. 7 seam is being worked. The Jewell Coal Co. has 300 acres under lease from the Buckeye Coal and Railway Co. The daily output will be about 700 tons.

**Bridgeport**—The Provident mine No. 2 at Fairpoint has been working steadily during the recent congestion of coal cars. The mine officials, when unable to obtain their daily supply of empties, followed the plan inaugurated by the Valley Camp Coal Co. and dumped their surplus output in a nearby field. The men at the mine, by the plan being put into operation, were able to get an average of five days' work per week.

## INDIANA

**Terre Haute**—A report was to the effect that mine tippie at Mine No. 5 of the Jackson Hill Coal Co. was burned on Feb. 12, the loss being about \$20,000. Production will be cut down about 2000 tons a day. J. C. Kolsom, general manager, is of the opinion that the fire was of incendiary origin, it being the third this winter in the district.

## ILLINOIS

**Pana**—For three days last week the three Pana coal companies, Penwell, Pana and Smith-Lohr, shipped their entire output to railroads, domestic consumers, public utilities, byproduct coke plants, manufacturers of perishable food or foods necessary for immediate consumption, and municipal, county and state government, under orders of Fuel Administrator Williams.

**Mechanicsburg**—Arrangements are under way for the reopening of the Mechanicsburg mine, half a mile north of town, which has been closed several years. It is to be pumped out as soon as possible and the tippie and office buildings erected. It is expected that the mine will employ several hundred men. A Mr. Hans, of Springfield, will be the mine superintendent.

**Lincoln**—After repeated ineffectual attempts to extinguish the fire which started Oct. 23, 1917, in the mine of the Lincoln Mining Co., the owners have decided to abandon it and the work of dismantling

it has begun. The equipment is to be offered for sale. The mine was originally opened Sept. 15, 1869. The present owners are the Frank Frorer estate, David H. Harts, Mr. and Mrs. Walter Puterbaugh, of Chicago, and D. H. Harts, Jr., of Lincoln. A 5-ft. vein at a depth of 271 ft. has been worked for years. The output has been about 1000 tons a day. The number of men employed was 175. The capital stock of the company is \$100,000.

**Belleville**—The Pittsburg, West End and Abend mines, with a daily capacity of 600 tons, were endangered by the breaking of a dike on Richland Creek north of here, which had been built to protect the mines. Water poured into the Pittsburg mine and caused a shutdown. The miners were put to work repairing the dike. There was danger that the other two mines would be flooded.

**Beardstown**—Strip mining methods were employed to salvage 32 carloads of coal which were dumped near here when a Chicago, Burlington & Quincy train went into the ditch. A steam shovel was brought into use and with the help of a crew of men the coal was scooped up and reloaded in three days.

**Carlinville**—A trolley line, it is understood, is to be constructed to connect the new town of Schoper with Carlinville. At Schoper development work is to be done by the Standard Oil Co. It is also understood that large smelters or an oil refinery will be established at Schoper in connection with the mines.

**Virginia**—Plans are being made to reopen the mine here, abandoned several years ago, or sink a new shaft to tap the 7-ft. vein, which was operated until competition drove the local company out of business. Charles Wilson, who was a member of the old company, is taking the initiative and will help to finance the new concern.

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**Charleston, W. Va.**—The Grady Creek Coal and Coke Co., of Princeton, with chief works at Duffy, Lewis County, has been incorporated with a capital of \$50,000. The incorporators are J. H. Davidson, T. B. Beckwith, H. C. Hadden, M. A. Lowe and T. M. Fry, of Princeton.

**Breckley, W. Va.**—The Rogers Coal Co. has been incorporated with a capital of \$25,000 to operate mines in Town district, Raleigh County. The incorporators are G. H. Boien, C. M. Rogers, P. L. Blackenship, G. C. Hedrick, all of Beckley, and John R. Griffith, of Ghent.

**Shrewsbury, W. Va.**—The Franklin Coal Co. has been incorporated with a capital of \$5000 to operate mines in Kanawha County. The incorporators are H. J. Lane, B. F. Watson, W. F. Wolf, W. L. Lane, of Mammoth, W. Va., and V. L. Black, of Charleston.

**Irwin, Penn.**—A coal deal, involving \$180,000, has been consummated in which two completely equipped coal mines and 60 acres of coal have been purchased by W. E. Rice, Logan Rush and Thomas Love. The operations of the mines will be continued by the new owners.

**Morgantown, W. Va.**—The Granville Coal Co. has been incorporated with a capital of \$10,000 to operate mines in Grant district, Monongalia County. The incorporators are Everhard Bierer, Joseph Bierer, E. H. Wingrove, Ida M. Wingrove and William E. Glasscock, all of Morgantown.

**St. Louis, Mo.**—The Illinois Traction Co. (McKinley system), has placed an order for 16 powerful electric locomotives to be used for coal and other freight trains exclusively. They are of a new type and far heavier and more powerful than the old ones, which draw from 20 to 30 cars.

**Tioga, W. Va.**—The Bear Run Coal Co., Tioga, has been incorporated with a capital stock of \$5000 to operate mines in Nicholas County. The incorporators are H. G. Carskadon, Ethel Carskadon, G. R. O'Connor of Richwood, W. Va., W. S. McQueen and F. W. Collins of Tioga.

**Milburn, W. Va.**—The Milburn By-Products Coal Co., Milburn, has been incorporated with a capital stock of \$100,000 to operate mines in Fayette County. The incorporators are E. W. Knight, Angus W. McDonald, L. G. Summerfield, V. L. Black and George S. Couch, all of Charleston.

**Williamsport, Penn.**—The Bennett Branch Coal Co., 12 West Fourth St., has had plans prepared for the construction of a new two-story club house, about 35 x 65 ft., to be located at Wilmore, for the benefit of its employees. T. J. Litzelman, 129 West Fourth St., Williamsport, is the architect.

**Pittsburgh, Penn.**—The Madigan-Johnson Coal Co., of Clarksburg, has been incorporated with a capital of \$25,000 to operate mines in Harrison County. The incorporators are J. W. Madigan, Florence E. Madigan, Aloysius Coll, of Clarksburg; T. J. Johnson and Amelia Johnson, of Meadowbrook, W. Va.

**Charleston, W. Va.**—The Pocahontas Coal Land Co., with chief works in Jumping Branch district, Mercer County, has been incorporated with a capital of \$25,000. The incorporators are J. B. Earwood, George W. Warren and Ashton File, of Beckley; William Prince, of Prince, and W. O. Abney, of Charleston.

**Rising Fawn, Ga.**—The Georgia Iron and Coal Co. is planning for the immediate development of about 45,000 acres of coal, iron and manganese lands in Bartow, Cherokee and Dade Counties. Plans for the early installation of mining machinery are now under consideration. Joel Hurt, Hurt Building, Atlanta, is president.

**Connellsville, Penn.**—The Thompson-Connellsville Coke Co. on Feb. 13 paid its



initial dividend of 15 per cent. following the bankruptcy of J. V. Thompson. The concern went on the rocks at the time of the Thompson failure, but it has now got back on its feet. The paying of a dividend came as a happy surprise to most of the stockholders.

**Reynoldsville, W. Va.**—The Alpha Portland Cement Co. is arranging for the installation of a series of plants to develop its local coal lands for the production of fuel for its manufacturing plants. Plans are now in progress for a second opening, which, it is anticipated, will be a shaft mine. The company will install electrical equipment for operation.

**Paducah, Ky.**—The West Kentucky Coal Co. suffered a heavy loss on Feb. 8, when an ice gorge went out at Caseyville, Ky., taking 22 loaded boats and barges, five empty flats, three pump boats and other equipment. Practically all of this equipment was sunk in the ice jam and will result in almost a total loss, estimated at \$100,000 by the president of the company, C. F. Richardson.

**Marion, Ind.**—The Marion Machine, Foundry and Supply Co. has taken over the entire business, good will, patterns, patents and drawings of the Planet Steam Specialty Co., which has specialized in the manufacture of soot blowers for all types of water-tube boilers. Gordon C. Bennett, inventor and secretary of the Planet company, will have charge of the engineering department to develop the manufacture of a complete line of water-tube soot blowers.

**Charleroi, Penn.**—During 1917 a total of 214,673,000 bushels of coal passed through Lock No. 4 on the Monongahela River, an increase of 20,362,000 bushels over 1916. The shortage of railroad cars also brought about the transportation of coke by water, and commencing in March, 4,433,000 bushels of coke were locked through No. 4. No coke was transported by water in 1916 or in any previous year of which there is a record.

**Kansas City, Mo.**—C. J. Ritter, a coal jobber of Centerville, Iowa, is under detention at the request of the local fuel administration, pending the filing of charges of violating the Lever Act. Ritter, it is alleged, accepted a bonus of \$200 in addition to the fixed price for ten cars of coal purchased by I. Peizman, a Kansas City retail dealer. Ritter says he merely accepted the money as an advance payment on coal to be delivered.

**Columbus, Ohio.**—The warmer weather has aided in railroads resuming almost normal traffic conditions and coal is now coming into Columbus and other points in larger quantities. The Hocking Valley Ry. moved 1247 cars into Columbus during a 48-hour period and the Toledo & Ohio Central moved 1056 cars into the Buckeye capital during the same period. The movement north of Columbus toward the Toledo gateway was also active in every respect.

**New York, N. Y.**—The annual beefsteak dinner of the Coal Merchants Association of New York was held at Murray's, in West 42nd street, Saturday evening, Feb. 16, and was attended by about 200 coal men. Addresses were made by County Fuel Administrator Reeve Schley as well as by the Deputy Fuel Administrators from State Administrator Wiggins' office, Harry T. Peters, chairman of the State Fuel Conservation Committee, Commissioner Arthur P. Rice and others.

**Charleston, W. Va.**—Twenty-five men were killed in West Virginia mines during the month of January, according to the report issued by Earl Henry, chief of the department. McDowell County led in the list of fatalities again, having six. Ten counties reported deaths as follows: Barbour County, 1; Braxton, 1; Fayette, 1; Harrison, 1; Kanawha, 4; Logan, 2; Marion, 3; Mason, 1; Ohio, 1. Of the 25 killed, 20 lost their lives inside the mines and five outside.

**Columbus, Ohio.**—Upon the return of Prof. Frank A. Ray, coal expert to Columbus, the Buckeye Coal and Railway Co. will start development work in No. 6 seam in the Bailey Run section of the Hocking Valley field. This seam will have to be reached by shafts which will be sunk to the depth of 80 ft. The Buckeye Coal and Railway Co. will make leases to operating companies to work this seam, retaining the right to sell the product. The mines in No. 6 seam will be large operations.

**Wellston, Ohio.**—Jackson County coal operators were summoned to Columbus to confer with J. B. Dugan, of the Ohio Public Utilities Commission, to improve the car-supply situation in the Jackson district, particularly as to the Cornelia branch of the Detroit, Toledo & Ironton R.R. The operators asked that a connection

be made with the Baltimore & Ohio and the Hocking Valley systems so that cars may be delivered to its line without being hauled many miles from other points.

**Jefferson City, Mo.**—The State of Missouri has no money in its fuel appropriation to pay its January coal bill, and the St. Clair Coal and Mining Co. of St. Louis, will have to wait for its money. When the January bill was presented it was found that the state lacked \$835 of having enough to pay it. The \$15,000 appropriation for this year and next year has been exhausted. It has not been determined whence the money is to come if more coal is needed.

**Louisville, Ky.**—Senator Brock has introduced a bill before the State Legislature calling for an individual department for the inspection of mines, the appointment of a chief mine inspector, and three assistant inspectors, and providing that the Chief Inspector give all of his time to the work. The present inspector of mines has charge of the engineering department of the State University. This bill creates the "Department of Mines," and gives the Governor the right to appoint the chief executive.

**Scottsdale, Penn.**—As the result of an investigation into electric power conditions in the Connellsville coke region by agents of the Council of National Defense, there is a possibility that a curtailment in the use of power by industries less essential than the mining of coal and the making of coke will be made. At any rate, the data secured by the investigators will be used as a check against the consumption as shown by the reports and records of the West Penn Power Co., which supplies the region.

**Charleston, W. Va.**—Max T. Price, of Charleston, secretary of the Kanawha Valley Coal Operators' Association, has been appointed temporary manager of the Chesapeake & Ohio forwarding bureau, of Russell, Ky. Feb. 25 has been set as the date for the beginning of operations of the pool. All coal mined from operations along the Chesapeake & Ohio lines in the Guyan, Kanawha, New River and Big Sandy fields will be billed directly to the forwarding bureau from where it will be distributed to consumers, at the discretion of the manager of the exchange.

**Danville, Ky.**—A total of 1600 cars of coal were recently being held in the local yards on account of congestion, but with the improvement in transportation most of this coal as well as the additional shipments from the mines has been moving forward, 500 cars having been shipped into Indiana within a few days. The transportation situation has shown great improvement. Various commodities are now moving eastward and northward, some commodities being barred from the East—that is, past the Buffalo-Pittsburgh line, this list including lumber.

**Chattanooga, Tenn.**—An interesting suit, involving the Dayton Coal and Iron Co., and reading "the Equitable Trust Co. vs. the Stockholders of the Dayton Coal and Iron Co.," has been filed, this suit involving about \$300,000. The suit is to recover this amount, it being claimed that the corporation was organized in Scotland, and was never domesticated, and therefore the stockholders were acting as partners and liable for all debts that had been incurred. A long list of prominent attorneys have been retained by the plaintiffs, while defendants are represented by Siser, Chambliss & Chambliss.

**Columbus, Ohio.**—Governor Cox has secured from Director General McAdoo a promise that the latter will appoint an Ohio representative to look after transportation in the state, with headquarters at Columbus. In all probability the appointee will be one connected with the State Public Utilities Commission. Governor Cox had a long and satisfactory conference with McAdoo. He submitted a list of specific recommendations bearing upon the Ohio Transportation situation. Chief among these was one that long hauls be abolished as far as possible and that something be done to improve the motive power of the railroads, which is deteriorating rapidly.

**Marion, Ohio.**—Speaking to business men, E. D. Leach, assistant state fuel administrator of Ohio, declared that it is the present plan of the fuel administration to limit the amount of coal domestic consumers can have during the summer. He declared the idea many entertain that they will lay in big supplies in warm weather in anticipation of needs next winter, are to be rudely shaken. In the course of his remarks he said that indications are now that this winter's experience is but a "taste" of what can be expected next

winter, and expressed the view that only suspension of industries to take that much burden off the coal-hauling railroads will bring relief.

**St. Louis, Mo.**—Missouri Fuel Administrator Crossley announces that arrangements satisfactory to him have been ordered by Federal Administrator Garfield for St. Louis to receive its fuel supply from the Fifth and Ninth Illinois districts. A deputy Federal administrator acceptable to Crossley will be appointed by Illinois Administrator Williams. Requisition will be made by Crossley and the St. Louis Fuel Committee on the deputy administrator for St. Louis' needs. The plan agreed upon is a compromise, he says, but under it all the coal needed for St. Louis will be requisitioned. An agreement has also been made for Kansas City to get its steam coal from the Springfield, Ill., district and western Missouri its domestic coal from the same district.

**Louisville, Ky.**—The final breaking of the last ice gorges on the upper Ohio River resulted in much damage to equipment belonging to river coal companies. On Feb. 13 barges which had broken loose at various points above Louisville started coming down, it being said that considerably more than 100 coal boats and barges, a number of wharf boats, pump boats, and other equipment were going down stream with the ice. Some of this equipment bumped the bridge piers in passing Louisville, but with a current of only six to eight miles an hour the damage was not great. The harbor is now wide open and practically all ice has run out. Towboats on the lower Ohio are endeavoring to catch the runaways. It is expected that some river coal will start moving down within the next few days on the present high water.

**Louisville, Ky.**—Coal operators are watching with much interest legislative developments in connection with some eight-hour bills which have been introduced before the General Assembly at Frankfort. House Bill No. 172, introduced by Representative Bays, was ordered printed and referred to the Committee on Immigration and Labor. This bill is entitled "An Act fixing eight hours as a working day in all contracts between employers and employees, and providing for payment of extra time, and penalties for violation of this act." This bill is aimed especially at the mines and railroads, and provides a penalty of \$100 for all violations of the act. The coal men feel confident that the Government under existing conditions will not allow any such state laws to interfere with the production of coal, although there is some strong opposition being pushed by individuals against these measures.

**St. Louis, Mo.**—A survey of St. Louis factories and industries to determine what industries could be classified as nonessential and closed down in case of necessity, has been completed by E. J. Troy, secretary of the Manufacturers' Association, for the St. Louis Fuel Committee. Troy received replies to his questionnaire from 864 firms, whose aggregate average fuel requirements are 57,000 to 58,000 tons, or 1450 cars a week. Industries considered essential because they manufacture food-stuffs or have war contracts number 243, using 12,863 tons of coal a week. Firms claiming they were essential industries numbered 227, using 40,550 tons a week. Their claims will be passed on by the fuel committee. There were 193 claiming to be essential industries but listed as doubtful by Troy. They use 1760 tons a week. Manufacturers of nonessential goods numbered 138, using 894 tons a week. Firms listed as nonessential by Troy numbered 36, using 105 tons a week.

**St. Louis, Mo.**—A new campaign for the removal of the 20c. a ton arbitrary on coal, charged by the Terminal Railway Association for hauling it across the bridge from East St. Louis, has been started by former Governor Joseph W. Folk, who resigned as chief counsel of the Interstate Commerce Commission to become chief counsel of the Chamber of Commerce. In an address to the Chamber of Commerce at the Planters Hotel, he expressed full confidence that the Interstate Commerce Commission, in harmony with recent decisions and with the present trend of thought on the subject, would rule that the arbitrary is unjust and order it abated. His confidence is based mainly on rulings of the commission that St. Louis and East St. Louis are to be considered as one destination on shipments of cattle from the West, and that New York and Jersey City are to be considered as one destination. In the new campaign it will be urged that St. Louis and East St. Louis are one destination on coal shipments.

it has begun. The equipment is to be offered for sale. The mine was originally opened Sept. 15, 1869. The present owners are the Frank Frorer estate, David H. Harts, Mr. and Mrs. Walter Puterbaugh, of Chicago, and D. H. Harts, Jr., of Lincoln. A 5-ft. vein at a depth of 271 ft. has been worked for years. The output has been about 1000 tons a day. The number of men employed was 175. The capital stock of the company is \$100,000.

**Belleville**—The Pittsburg, West End and Abend mines, with a daily capacity of 600 tons, were endangered by the breaking of a dike on Richland Creek north of here, which had been built to protect the mines. Water poured into the Pittsburg mine and caused a shutdown. The miners were put to work repairing the dike. There was danger that the other two mines would be flooded.

**Beardstown**—Strip mining methods were employed to salvage 32 carloads of coal which were dumped near here when a Chicago, Burlington & Quincy train went into the ditch. A steam shovel was brought into use and with the help of a crew of men the coal was scooped up and reloaded in three days.

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**Pittsburgh, Penn.**—The Asbestos Protected Metal Co., of Pittsburgh, announces the removal of its Boston office to the State Mutual Building, to be in charge of William H. Cummings. The telephone number, Fort Hill 3688, remains unchanged.

**Morgantown, W. Va.**—The Berry Coal Co. has been incorporated with a capital of \$25,000 to operate mines in Cass district, Monongalia County. The incorporators are Everhard Bierer, Joseph Bierer, Lee R. Shriver, Frank C. Shriver and William E. Glasscock.

**Charleston, W. Va.**—The Grady Creek Coal and Coke Co., of Princeton, with chief works at Duffy, Lewis County, has been incorporated with a capital of \$50,000. The incorporators are J. H. Davidson, T. B. Beckwith, H. C. Hadden, M. A. Lowe and T. M. Fry, of Princeton.

**Beckley, W. Va.**—The Rogers Coal Co. has been incorporated with a capital of \$25,000 to operate mines in Town district, Raleigh County. The incorporators are G. H. Boien, C. M. Rogers, P. L. Blackenship, G. C. Hedrick, all of Beckley, and John P. Griffith, of Ghent.

**Shrewsbury, W. Va.**—The Franklin Coal Co. has been incorporated with a capital of \$5000 to operate mines in Kanawha County. The incorporators are H. J. Lane, B. F. Watson, W. F. Wolf, W. L. Lane, of Mammoth, W. Va., and V. L. Black, of Charleston.

**Irwin, Penn.**—A coal deal, involving \$180,000, has been consummated in which two completely equipped coal mines and 60 acres of coal have been purchased by W. E. Rice, Logan Rush and Thomas Love. The operations of the mines will be continued by the new owners.

**Morgantown, W. Va.**—The Granville Coal Co. has been incorporated with a capital of \$10,000 to operate mines in Grant district, Monongalia County. The incorporators are Everhard Bierer, Joseph Bierer, E. H. Wingrove, Ida M. Wingrove and William E. Glasscock, all of Morgantown.

**St. Louis, Mo.**—The Illinois Traction Co. (McKinley system), has placed an order for 16 powerful electric locomotives to be used for coal and other freight trains exclusively. They are of a new type and far heavier and more powerful than the old ones, which draw from 20 to 30 cars.

**Tioga, W. Va.**—The Bear Run Coal Co., Tioga, has been incorporated with a capital stock of \$5000 to operate mines in Nicholas County. The incorporators are H. G. Carskadon, Ethel Carskadon, G. R. O'Connor of Richmond, W. Va., W. S. McQueen and F. W. Collins of Tioga.

**Milburn, W. Va.**—The Milburn By-Products Coal Co., Milburn, has been incorporated with a capital stock of \$100,000 to operate mines in Fayette County. The incorporators are E. W. Knight, Angus W. McDonald, L. G. Summerfield, V. L. Black and George S. Couch, all of Charleston.

**Williamsport, Penn.**—The Bennett Branch Coal Co., 12 West Fourth St., has had plans prepared for the construction of a new two-story club house, about 35 x 65 ft., to be located at Wilmore, for the benefit of its employees. T. J. Litzelman, 129 West Fourth St., Williamsport, is the architect.

**Pittsburgh, Penn.**—The Madigan-Johnson Coal Co., of Clarksburg, has been incorporated with a capital of \$25,000 to operate mines in Harrison County. The incorporators are J. W. Madigan, Florence E. Madigan, Aloysius Coll, of Clarksburg; T. J. Johnson and Amelia Johnson, of Meadowbrook, W. Va.

**Charleston, W. Va.**—The Pocahontas Coal Land Co., with chief works in Jumping Branch district, Mercer County, has been incorporated with a capital of \$25,000. The incorporators are J. B. Earwood, George W. Warren and Ashton File, of Beckley; William Prince, of Prince, and W. O. Abney, of Charleston.

**Rising Fawn, Ga.**—The Georgia Iron and Coal Co. is planning for the immediate development of about 45,000 acres of coal, iron and manganese lands in Bartow, Cherokee and Dade Counties. Plans for the early installation of mining machinery are now under consideration. Joel Hurt, Hurt Building, Atlanta, is president.

**Connellsville, Penn.**—The Thompson-Connellsville Coke Co. on Feb. 13 paid its



initial dividend of 15 per cent. following the bankruptcy of J. V. Thompson. The concern went on the rocks at the time of the Thompson failure, but it has now got back on its feet. The paying of a dividend came as a happy surprise to most of the stockholders.

**Reynoldsville, W. Va.**—The Alpha Portland Cement Co. is arranging for the installation of a series of plants to develop its local coal lands for the production of fuel for its manufacturing plants. Plans are now in progress for a second opening, which, it is anticipated, will be a shaft mine. The company will install electrical equipment for operation.

**Paducah, Ky.**—The West Kentucky Coal Co. suffered a heavy loss on Feb. 8, when an ice gorge went out at Caseyville, Ky., taking 22 loaded boats and barges, five empty flats, three pump boats and other equipment. Practically all of this equipment was sunk in the ice jam and will result in almost a total loss, estimated at \$100,000 by the president of the company, C. F. Richardson.

**Marion, Ind.**—The Marion Machine, Foundry and Supply Co. has taken over the entire business, good will, patterns, patents and drawings of the Planet Steam Specialty Co., which has specialized in the manufacture of soot blowers for all types of water-tube boilers. Gordon C. Bennett, inventor and secretary of the Planet company, will have charge of the engineering department to develop the manufacture of a complete line of water-tube soot blowers.

**Charleroi, Penn.**—During 1917 a total of 214,673,000 bushels of coal passed through Lock No. 4 on the Monongahela River, an increase of 20,362,000 bushels over 1916. The shortage of railroad cars also brought about the transportation of coke by water, and commencing in March, 4,433,000 bushels of coke were locked through No. 4. No coke was transported by water in 1916 or in any previous year of which there is a record.

**Kansas City, Mo.**—C. J. Ritter, a coal jobber of Centerville, Iowa, is under detention at the request of the local fuel administration, pending the filing of charges of violating the Lever Act. Ritter, it is alleged, accepted a bonus of \$200 in addition to the fixed price for ten cars of coal purchased by I. Pelzman, a Kansas City retail dealer. Ritter says he merely accepted the money as an advance payment on coal to be delivered.

**Columbus, Ohio.**—The warmer weather has aided in railroads resuming almost normal traffic conditions and coal is now coming into Columbus and other points in larger quantities. The Hocking Valley Ry. moved 1247 cars into Columbus during a 48-hour period and the Toledo & Ohio Central moved 1056 cars into the Buckeye capital during the same period. The movement north of Columbus toward the Toledo gateway was also active in every respect.

**New York, N. Y.**—The annual beefsteak dinner of the Coal Merchants Association of New York was held at Murray's, in West 42nd street, Saturday evening, Feb. 16, and was attended by about 200 coal men. Addresses were made by County Fuel Administrator Reeve Schley as well as by the Deputy Fuel Administrators from State Administrator Wiggin's office, Harry T. Peters, chairman of the State Fuel Conservation Committee, Commissioner Arthur P. Rice and others.

**Charleston, W. Va.**—Twenty-five men were killed in West Virginia mines during the month of January, according to the report issued by Earl Henry, chief of the department. McDowell County led in the list of fatalities again, having six. Ten counties reported deaths as follows: Barbour County, 1; Braxton, 1; Fayette, 1; Harrison, 1; Kanawha, 4; Logan, 2; Marion, 3; Mason, 1; Ohio, 1. Of the 25 killed, 20 lost their lives inside the mines and five outside.

**Columbus, Ohio.**—Upon the return of Prof. Frank A. Ray, coal expert to Columbus, the Buckeye Coal and Railway Co. will start development work in No. 6 seam in the Bailey Run section of the Hocking Valley field. This seam will have to be reached by shafts which will be sunk to the depth of 80 ft. The Buckeye Coal and Railway Co. will make leases to operating companies to work this seam, retaining the right to sell the product. The mines in No. 6 seam will be large operations.

**Wellston, Ohio.**—Jackson County coal operators were summoned to Columbus to confer with J. B. Dugan, of the Ohio Public Utilities Commission, to improve the car-supply situation in the Jackson district, particularly as to the Cornelia branch of the Detroit, Toledo & Ironton R.R. The operators asked that a connec-

tion be made with the Baltimore & Ohio and the Hocking Valley systems so that cars may be delivered to its line without being hauled many miles from other points.

**Jefferson City, Mo.**—The State of Missouri has no money in its fuel appropriation to pay its January coal bill, and the St. Clair Coal and Mining Co., of St. Louis, will have to wait for its money. When the January bill was presented it was found that the state lacked \$835 of having enough to pay it. The \$15,000 appropriation for this year and next year has been exhausted. It has not been determined whence the money is to come if more coal is needed.

**Louisville, Ky.**—Senator Brock has introduced a bill before the State Legislature calling for an individual department for the inspection of mines, the appointment of a chief mine inspector, and three assistant inspectors, and providing that the Chief Inspector give all of his time to the work. The present inspector of mines has charge of the engineering department of the State University. This bill creates the "Department of Mines," and gives the Governor the right to appoint the chief executive.

**Scottsdale, Penn.**—As the result of an investigation into electric power conditions in the Connellsville coke region by agents of the Council of National Defense, there is a possibility that a curtailment in the use of power by industries less essential than the mining of coal and the making of coke will be made. At any rate, the data secured by the investigators will be used as a check against the consumption as shown by the reports and records of the West Penn Power Co., which supplies the region.

**Charleston, W. Va.**—Max T. Price, of Charleston, secretary of the Kanawha Valley Coal Operators' Association, has been appointed temporary manager of the Chesapeake & Ohio forwarding bureau, of Russell, Ky. Feb. 25 has been set as the date for the beginning of operations of the pool. All coal mined from operations along the Chesapeake & Ohio lines in the Guyan, Kanawha, New River and Big Sandy fields will be billed directly to the forwarding bureau from where it will be distributed to consumers, at the discretion of the manager of the exchange.

**Danville, Ky.**—A total of 1600 cars of coal were recently being held in the local yards on account of congestion, but with the improvement in transportation most of this coal as well as the additional shipments from the mines has been moving forward, 500 cars having been shipped into Indiana within a few days. The transportation situation has shown great improvement. Various commodities are now moving eastward and northward, some commodities being barred from the East—that is, past the Buffalo-Pittsburgh line, this list including lumber.

**Chattanooga, Tenn.**—An interesting suit, involving the Dayton Coal and Iron Co., and reading "the Equitable Trust Co. vs. the Stockholders of the Dayton Coal and Iron Co.," has been filed, this suit involving about \$300,000. The suit is to recover this amount, it being claimed that the corporation was organized in Scotland, and was never domesticated, and therefore the stockholders were acting as partners and liable for all debts that had been incurred. A long list of prominent attorneys have been retained by the plaintiffs, while defendants are represented by Siser, Chambliss & Chambliss.

**Columbus, Ohio.**—Governor Cox has secured from Director General McAdoo a promise that the latter will appoint an Ohio representative to look after transportation in the state, with headquarters at Columbus. In all probability the appointee will be one connected with the State Public Utilities Commission. Governor Cox had a long and satisfactory conference with McAdoo. He submitted a list of specific recommendations bearing upon the Ohio Transportation situation. Chief among these was one that long hauls be abolished as far as possible and that something be done to improve the motive power of the railroads, which is deteriorating rapidly.

**Marion, Ohio.**—Speaking to business men, E. D. Leach, assistant state fuel administrator of Ohio, declared that it is the present plan of the fuel administration to limit the amount of coal domestic consumers can have during the summer. He declared the idea many entertain that they will lay in big supplies in warm weather in anticipation of needs next winter, are to be rudely shaken. In the course of his remarks he said that indications are now that this winter's experience is but a "taste" of what can be expected next

winter, and expressed the view that only suspension of industries to take that much burden off the coal-hauling railroads will bring relief.

**St. Louis, Mo.**—Missouri Fuel Administrator Crossley announces that arrangements satisfactory to him have been ordered by Federal Administrator Garfield for St. Louis to receive its fuel supply from the Fifth and Ninth Illinois districts. A deputy Federal administrator acceptable to Crossley will be appointed by Illinois Administrator Williams. Requisition will be made by Crossley and the St. Louis Fuel Committee on the deputy administrator for St. Louis' needs. The plan agreed upon is a compromise, he says, but under it all the coal needed for St. Louis will be requisitioned. An agreement has also been made for Kansas City to get its steam coal from the Springfield, Ill., district and western Missouri its domestic coal from the same district.

**Louisville, Ky.**—The final breaking of the last ice gorges on the upper Ohio River resulted in much damage to equipment belonging to river coal companies. On Feb. 13 barges which had broken loose at various points above Louisville started coming down, it being said that considerably more than 100 coal boats and barges, a number of wharf boats, pump boats, and other equipment were going down stream with the ice. Some of this equipment bumped the bridge piers in passing Louisville, but with a current of only six to eight miles an hour the damage was not great. The harbor is now wide open and practically all ice has run out. Towboats on the lower Ohio are endeavoring to catch the runaways. It is expected that some river coal will start moving down within the next few days on the present high water.

**Louisville, Ky.**—Coal operators are watching with much interest legislative developments in connection with some eight-hour bills which have been introduced before the General Assembly at Frankfort. House Bill No. 172, introduced by Representative Bays, was ordered printed and referred to the Committee on Immigration and Labor. This bill is entitled "An Act fixing eight hours as a working day in all contracts between employers and employees, and providing for payment of extra time, and penalties for violation of this act." This bill is aimed especially at the mines and railroads, and provides a penalty of \$100 for all violations of the act. The coal men feel confident that the Government under existing conditions will not allow any such state laws to interfere with the production of coal, although there is some strong opposition being pushed by individuals against these measures.

**St. Louis, Mo.**—A survey of St. Louis factories and industries to determine what industries could be classified as nonessential and closed down in case of necessity, has been completed by E. J. Troy, secretary of the Manufacturers' Association, for the St. Louis Fuel Committee. Troy received replies to his questionnaire from 864 firms, whose aggregate average fuel requirements are 57,000 to 58,000 tons, or 1450 cars a week. Industries considered essential because they manufacture foodstuffs or have war contracts number 243, using 12,863 tons of coal a week. Firms claiming they were essential industries numbered 227, using 40,550 tons a week. Their claims will be passed on by the fuel committee. There were 193 claiming to be essential industries but listed as doubtful by Troy. They use 1760 tons a week. Manufacturers of nonessential goods numbered 138, using 894 tons a week. Firms listed as nonessential by Troy numbered 36, using 105 tons a week.

**St. Louis, Mo.**—A new campaign for the removal of the 20c. a ton arbitrary on coal, charged by the Terminal Railway Association for hauling it across the bridge from East St. Louis, has been started by former Governor Joseph W. Folk, who resigned as chief counsel of the Interstate Commerce Commission to become chief counsel of the Chamber of Commerce. In an address to the Chamber of Commerce at the Planters Hotel, he expressed full confidence that the Interstate Commerce Commission, in harmony with recent decisions and with the present trend of thought on the subject, would rule that the arbitrary is unjust and order it abated. His confidence is based mainly on rulings of the commission that St. Louis and East St. Louis are to be considered as one destination on shipments of cattle from the West, and that New York and Jersey City are to be considered as one destination. In the new campaign it will be urged that St. Louis and East St. Louis are one destination on coal shipments.

# MARKET DEPARTMENT

## Weekly Review

*Coal Moving Forward from Mines, Though Motive Power Is Still Source of Worry—Domestic Situation Improved—Industrial Market Unable To Meet Demand—Jobbers Dismayed by New Ruling To Abolish Commissions*

**F**OR the first time in many weeks shipments from the mines are moving with moderate regularity. Reports from all sections, with the exception of the New England States, indicate that the coal crisis is over. However, this does not mean that the danger of a recurring scarcity is entirely removed, but that with a continuation of good weather distressing periods such as the country has just experienced are improbable.

The chief trouble still is lack of motive power, and many loaded cars yet remain on sidings on this account. A report by Government investigators shows that thousands of cars in poor condition clog the terminals and impede delivery. Railroad companies state they are unable to get sufficient men to keep up repairs. An appeal to mining companies for the transfer of men with mechanical ability has met with some success.

The general public expressed much satisfaction at the demise of "heatless Monday." Some industrial plants are working on close margins of fuel supply. Anthracite is still scarce, though the mines are shipping large quantities to tidewater. The resumption of water-borne traffic will also aid in the movement of coal and take some pressure off the railroads.

Radical changes in distribution

routes are in prospect. So great is the demand from the East that a plan of coal distribution, approved by the Fuel Administration, proposes that Eastern seaboard states shall have first choice on the output of anthracite. This means that after Apr. 1 states in the West and Northwest will not be permitted to receive hard coal. This will be true also of Canada and the South. The mines of the Middle West will thus have their natural markets pretty much to themselves.

The committee in charge of the zoning plan seems to be making but little progress. It has been found to be a more difficult proposition than at first contemplated. Theoretically the arrangement seems ideal, but so many difficulties have beset the practical application that it looks as if the plan will not be ready for operation for some time.

Domestic demand is considerably lighter, and dealers are rapidly catching up with their orders. The industrial market is not so fortunate, however, a brisk demand for steam coals being in evidence, with the possibility that Eastern industrial plants of all kinds will be forced to burn bituminous only in the future.

Little contracting is reported for future requirements, and activity in this direction is not expected to develop

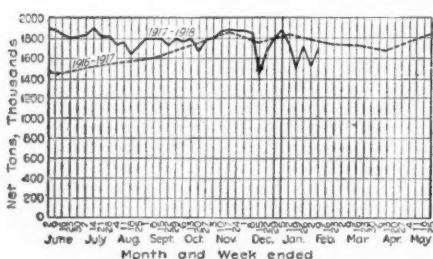
to any extent until conditions become more favorable. Operating companies are now busy preparing new contract forms, as in order to conform to the Government regulations it has been necessary to make changes in the present blanks. All contracts made must be submitted to the Fuel Administration for approval. In this way the national authorities will be able to keep a check on the sizes of coal that are being used for steam consumption.

The announcement that the 15 to 30c. commission which jobbers are now permitted to add to the mine price will be done away with after Apr. 1 has been received with consternation by many middlemen. It cannot be denied, however, that the order will tend to eliminate a great deal of profiteering on the part of some operators who established subsidiary companies for the express purpose of selling coal, thereby absorbing this commission. Under the new ruling retail dealers will obtain coal at the same price, whether they purchase it from the mine or through a middleman.

Production will doubtless be greatly stimulated by the order of the Fuel Administrator granting an increase of 60c. a ton for coal mined in the central Pennsylvania district. This will go far toward encouraging the investment of further capital in development work.

### COAL PRODUCTION

With the return of milder weather the production of coal again began to approach normal, although the severe congestion of transportation caused by the cold weather of mid-January had not been entirely overcome by Feb. 9. The total production of bituminous coal, including lignite and coal made into coke, is estimated at 10,215,000 net tons during the week of Feb. 9. The



rate of production was the highest attained since the five-day week of Jan. 5. Beehive coke shared in the recovery reported by the bituminous industry as a whole. The week's production is estimated at 505,000 net tons, an average per working day of 84,000 tons. Shipments of anthracite, however, declined from 34,482 cars to 32,011 cars.

### CARLOADS OF COAL AND COKE ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS

WEEK ENDED:

Jan. 19 Jan. 26 Feb. 2 Feb. 9

Bituminous shipments, 121 roads.	150,865	181,471*	170,552*	183,783†
Anthracite shipments, 9 roads.	31,861	33,406	34,482*	32,011†
Beehive coke shipments, 4 roads.	10,826	10,408*	9,655*	10,365†

\*Revised from last report. † Subject to revision.

### Atlantic Seaboard

#### BOSTON

Small reserves dwindle in cities. Receipts still far behind actual consumption, although mild weather leads public to think conditions better. New prices and trade already look ahead to next season. A few "contracts" placed, but question of bottoms looms up. Railroads unable to increase tonnage hauled. Loading improves at Hampton Roads, but still not enough coal available for New England.

**Bituminous**—While a few days of mild weather gave rise to some optimism over the fuel situation, those in touch with it saw reason only for continued apprehension. Another Panama R.R. collier diverted to New England, the "Ulysses," helps somewhat in meeting the smaller emergen-

cies like pumping stations and power plants, hospitals, etc., all over New England, and it is just such deliveries spread over a large area that save the situation. Except in a relatively few instances, the fuel authorities are not interfering with the flow of coal on contract, whether all-rail or at tide, but what shipments are at their disposal are still being strictly confined to immediate needs in "Class A." A few exceptions have been made in cases where a small mill is practically the sole dependence of a community and a few cars are sent in order to forestall real distress. During the last week the situation got so serious that a full cargo for a group of woolen mills was practically halved to give the Bangor & Maine R.R. a small supply for the Boston end of the system. The Maine Central is in straits for coal, and every few days a steamer has to be diverted.

The Boston retail market ordinarily absorbs 8000 tons or so daily of bituminous, but under the conservation rules in force the consumption is now being held down to about 3500 tons. Only a few of the public schools are in session, and only by the closest calculation can the Fuel Administration assure a continuous supply of this quantity for more than one or two days a week. The rest, if it comes, will have to come through the usual channels and the prospect for the current week is not encouraging. Receipts have shown a steady falling off, and unless shipments by water are in some way increased there will be acute suffering should the weather turn cold.



Ice conditions in Long Island and Vineyard Sound are still a menace and the number of losses last week was even larger than was feared. Much has been expected from the "thaw," but the watersheds have not yet loosened up to any extent that would help. The flow of streams like the Connecticut is away below normal, and power stations are still dependent on the maximum efficiency of steam auxiliaries.

The mild temperature at Hampton Roads, however, has had a marked effect. Dumping is fast becoming normal, although as to arrivals and receipts it is now a close race between coal and boats. Instead of accumulating, the latter are now in scarcely sufficient number to take the coal as fast as it arrives, and it will soon be up to the authorities to supply bottoms from somewhere; that is, if New England industries are to be kept in operation.

Some relief is expected from the recent order placing an embargo for three days against westbound coal on the three Virginia roads, but it is still felt that the Federal authorities underestimate the actual needs of New England. The railroads are powerless to handle any material increase in the tonnage they hauled in 1917, and the rest must come either by water or not at all.

On the New England order of Jan. 3 calling for 500 cars daily, all-rail, the average during February has so far been only 91, including a quota for the railroads. It is now necessary to increase the proportion for certain of the roads and to decrease others. The larger systems use for engine supply in the aggregate about 16,400 tons daily, and this must all be available at necessary points in order to keep coal rolling into New England.

On Feb. 16 the trade was delighted to hear of the 60c. advance in central Pennsylvania following the 40c. granted the Piedmont region ten days or so earlier. There is a feeling that with such an advance a large number of operations can "resume business," and it will be interesting to observe the effect of the recent order. The question of contracts is now to the fore, and while at this writing it is too soon after the price announcement to report any developments in New England, the week is sure to be a stirring one. The "zone plan" is also coming in for liberal discussion, along with the new ruling of the Fuel Administration affecting "jobbers." Comment on the latter seems generally favorable, although middle houses here are in some trepidation over the attitude of some of the producers who may feel themselves in position this year to dispense with such "useful service" as jobbers have rendered in the past.

A few tidewater "contracts" have been placed by Boston distributors who apparently rely upon their lightening facilities to justify the alongside prices named. It would seem more like speculation than selling coal.

Large manufacturing centers like Lowell and Lawrence, Mass., have been on the verge of general shutdown two or three times the past fortnight. Only by emergency supplies coming either through the Fuel Administration or on sufferance have these plants been in position to run, after borrowing from one another and using wood and anthracite screenings and culm to a larger extent than would have been thought possible.

#### NEW YORK

**Anthracite situation shows improvement, but conservation is urged. Jobbers fight elimination as result of Garfield order cutting off commission. Local fuel administrators reject badly prepared coal. Bituminous supplies scarce and car supply continues poor. New England is promised larger shipments.**

**Anthracite**—While the situation in this market has been greatly relieved by several days of mild weather, the local trade is not satisfied that danger has passed. Receipts have been steadily increasing, and although the heatless Mondays are a thing of the past, the coal coming to the dealers is being rapidly absorbed. More coal has been received during the past week than for several weeks, but it has been far short of the normal requirements. The Fuel Administration officials and dealers are constantly warning consumers to go slow on consumption.

The decree of Dr. Garfield eliminating jobbers' commissions was not a surprise to the local trade. In fact, the order which at that time had not been promulgated, but had come to the knowledge of the officers of the Wholesale Coal Trade Association, was the reason for the calling together of the trade at the Whitehall Club on Feb. 13.

The Garfield decree is considered in various ways by the local trade. Some view it with alarm, while others, more conservative, do not think that it will result in the elimination of the jobber. The latter believe that the operator, who according to the order, is to be allowed an advance in the price of coal to cover the selling costs, will dispose of his product through the middleman as at present instead of establishing his own selling force. The other jobber believes the new order means the ultimate wiping out of the jobber, who has for many years been the means of disposing to the trade a large part of the output of the mines.

About 150 jobbers or middlemen are doing business in this market. Many of these have small mine connections, while others have sufficient mine connections, some through ownership, to furnish them with the full tonnage requirements. No matter what the outcome of the decree may be ultimately, the majority of the dealers are of the opinion that it means a fight if they are to retain their business.

Efforts to compel anthracite operators to send well-prepared coal to this market are being pursued by the State Fuel Administration officials. A statement issued by Deputy State Administrator Robertson says that the office has rejected two cargoes which analysis shows contained 69 per cent. of rock and slate, and 31 per cent. of coal. The consignee of the coal was requested to refuse shipment and to notify the shipper to return his prepaid payment. The railroad company carrying the coal notified the producers that no more coal would be furnished to them.

While consumption has not been so heavy as for the past several weeks, the demand continues strong, due in most part to the desire of consumers to replenish their stocks sufficiently to carry them into warm weather. The improvement in receipts is noticeable in the large number of vehicles carrying coal seen in the streets.

The situation is better in all the boroughs of the Greater City, but is particularly good in The Bronx. The dealers there, according to reports, have more coal in their yards than the dealers in the other boroughs. In Brooklyn there has been a decided change for the better. Dealers are impressing into service any kind of vehicle to make deliveries, and consumers are willing to take as a substitute for the coal ordered any other size sent them.

Another investigation into the local coal trade is promised by the Board of Aldermen as the result of a resolution introduced into that body. The Mayor's Coal Committee, which asked for \$50,000 to purchase coal for the very poor of the city, has received about \$17,000, and in addition about 1000 tons of coal.

The anthracite steam sizes continue to be scarce with the demand strong, particularly for rice and barley. Considerable culm or dust is being sent here, which is mixed with bituminous.

Current quotations, per gross ton, f.o.b. Tidewater, at the lower ports, are as follows:

	Circular	Individual
Broken .....	\$6.30	\$7.05
Egg .....	6.20	6.95
Stove .....	6.45	7.20
Chestnut .....	6.55	7.30
Pea .....	5.05	5.80
Buckwheat .....	4.30@5.00	5.50@5.80
Rice .....	3.75@3.95	4.50@4.80
Barley .....	3.25@3.50	4.00@4.25
Boiler .....	3.50@3.75	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

**Bituminous**—The situation here continues serious despite the let-up in heavy consumption. Many industrial plants continue to be without supplies, while in New Jersey several hundred persons were idle because of the lack of coal.

The one bright spot in the situation was the fixing of a price for coal from the thin vein district of Pennsylvania at 60c. above the former figure. An advance had been expected for several weeks. The order which provides for the one price for all the coal, instead of separate prices for run-of-mine, prepared sizes and slack, also provides that in order to provide funds to meet the expenses of pools and other arrangements made by the operators to facilitate the movement and distribution of coal 5 mills per ton is to be added to the new price and the money is to be placed in a fund, which fund is to be distributed by an operators' committee to be named later.

An order was also issued making all smithing coal subject to the Government price for bituminous coal. This repeals the order of Oct. 1, providing that coal specially prepared for use in smithing may be

sold at the market price prevailing at the time of sale.

Local tradesmen are now anxious as to the additional advance in price that Dr. Garfield will decide upon to cover the cost of selling expenses and which will practically eliminate the jobber from the situation unless the latter can secure his commission from the operator.

The assurance given at Washington to the New England fuel administrators that they will receive at least one million tons of coal a month to relieve the situation is expected to divert some coal from this market, but not a large amount, since more than half the amount will go by water, most of it from the Southern ports.

There is nothing new in the contract situation. While it was not expected that there would be many renewals at the former Government price, the new price may result in some renewals.

There is considerable bituminous being used in apartments and hotels, most of it being mixed with the smaller anthracite coals.

Requests have been made on local houses by the New England fuel officials for increased shipments of coal for railroad use, but it was pointed out that this was impossible because of the poor car supply. Cars are running badly, one operator instead of receiving nearly 30 cars so far this month having received less than five.

#### PHILADELPHIA

**Anthracite domestic trade helped by mild days. Believe worst past. Planning for next winter. Rule covering spring deliveries. Entire production for East. Pea coal situation interesting. New contracts. Bituminous price increased to \$3.05. Increased production expected. Mild weather helps situation, but supply still short. Drastic brokerage ruling. Crippled cars and lack of motive power hold back deliveries.**

**Anthracite**—There is a general improvement in conditions. As anticipated, the mild weather proved the salvation of an unbearable situation. The worst of the city's coal troubles are virtually over for the balance of the winter, at least this is the opinion given out by the fuel administration. For a week the consumption of coal has been much lighter than for months and the railroads have made heavy deliveries. Some of the big companies really made such large deliveries that a few dealers were actually compelled to hold their orders until they could unload coal that had arrived.

Chairman Lewis of the city fuel committee has some ideas that he hopes to put into effect if they are supported by the state fuel administrator. In the first place, he believes that there are about twenty times too many yards here. Instead of 230, the present number, Mr. Lewis would favor about one dozen yards.

On account of the number of dealers at present, territories overlap and it is not unusual for a dealer in an extreme section of the city to make deliveries to the other end. He acknowledges that any plan to eliminate about 95 per cent. of the coal yards would not be successful, and he would refuse to try to force any of them out of business; nor would he want to aid the larger concerns in creating a monopoly of the business. His plans embrace a zoning system so that dealers can only deliver coal in their particular district. Mr. Lewis is also anxious to prohibit the sale of domestic sizes, including pea coal, to any manufacturing plant, business house, office building or hotel. His idea is to conserve the entire production of this coal for dwelling houses. Where the former are not equipped to burn steam sizes or bituminous, he hopes to force a change in the heating systems.

That the coming summer will be an extremely active one was forecasted at a meeting in the state administrator's offices Friday of last week. At this meeting were assembled the various county administrators, and the national administration for the first time announced its plan of wholesale distribution. The plan was outlined by L. A. Snead, Dr. Garfield's representative, who imparted the information that the entire production of anthracite was to be confined to the Atlantic seaboard and that the states in the West and Northwest, which had formerly depended upon anthracite for their fuel must depend upon the bituminous mines located nearest to them. This is also to include the shipments formerly made into Canada. It is understood that the plan is to go into effect on Apr. 1, and all consumers of anthracite will be encouraged to lay in their winter's supply during the spring and summer.

The order cutting out a direct commission to the jobber came as a great surprise. While this has long been advocated by that portion of the press not thoroughly

acquainted with the coal trade, it was not really expected that such a rule would be made at this time. As a matter of fact, there is but a small tonnage of anthracite sold in this city through middle houses, as following the lead of the largest company some 10 or 12 years ago, the system had been almost entirely eliminated.

Owing to the plan worked out by the National Administration to allow an increase in the mines prices in order to cover the jobber's commission, it would seem that the continuance of this feature of the trade is entirely in the hands of the operating companies now. This suggestion of increased mines price now brings to the front the question of what the new April figures will be. It will be recalled it was positively stated when the President approved the increase of 35c. on Dec. 1 last that the usual April reduction of 50c. would be insisted upon. So far as the dealers are concerned, they are opposed to an April reduction this year, as last year they were flooded with so many orders at the spring prices that they were unable to fill them at the reduced prices and were compelled to fill them later in the year at a loss. From this it would seem that it is the Government's intention to increase the present basic or winter price by about 15c. and then order the usual April reduction of 50c. With the information at hand, no other deduction seems plausible.

Another matter of great interest to the retailers is what will be the status of pea coal after Apr. 1. There is already a ruling of the National Administration against the sale of this size of coal for steaming purposes, and for this reason it looks as if a great quantity of pea coal will be thrown upon the retail market. It will be recalled that around the first of last year many of the big producing companies closed extensive contracts with manufacturing plants for big tonnages of pea coal, one company selling 400,000 tons to a single concern. With all this tonnage being turned over to the domestic trade, it would seem as if there will be enough of this size to go around this summer. It is possible also that the dealers will be able to accumulate stocks of this size, as was the case in normal times. Much, of course, depends upon how well the consuming public keeps its resolution not to be caught short of fuel another winter. If the warm weather should dispel some of these good intentions, even the operating companies may accumulate some stocks in their storage yards. The entire subject is a most interesting one and is causing much conjecture.

At this time all of the operating companies are busy preparing their contract forms. Most of the anthracite contracts expire at this time, and in order to conform to the Government regulations it has been necessary to make changes in the present blanks. All contracts that are made must also be submitted to the Fuel Administration for approval, and in this way the national authorities will be able to keep a check on the sizes of coal that are being used for steam consumption.

Despite the progress made during the past week there are still many homes in the city without coal, but present plans will no doubt bring prompt relief.

Dealers are disturbed lest their gross margin of profit be reduced from \$2.50 by the city fuel committee. It will be recalled that when this basis was decided upon there was a strong protest from press and public, and it was announced at that time that the ruling was not to be considered permanent. A statement late in the week from Chairman Lewis that the margin would not be lowered for the present, but would probably be taken up later, is not at all comforting to the dealers.

All sizes of steam coal are still held at the figures prevailing for the past six weeks, from culm at \$1.50 to \$2 up to \$4.15 for buckwheat on spot shipments from individual shippers, although the demand for culm fell off quite considerably this week in anticipation of an increased supply of bituminous coal.

The prices per gross ton, f.o.b. cars at mines for line delivery and f.o.b. Port Richmond for tide, are as follows:

	Line	Tide		Line	Tide
Broken.....	\$5.90	\$6.05	Buck.....	\$3.15	\$3.75
Egg.....	4.80	6.00	Rice.....	2.65	3.65
Stove.....	5.05	6.35	Boiler.....	2.45	3.55
Nut.....	5.15	6.40	Barley.....	2.15	2.40
Pea.....	3.75	4.65			

**Bituminous**—The trade was greatly encouraged by the order of the Fuel Administration granting an increase of 60c. a ton for coal mined in the central Pennsylvania district. While the increase was not altogether unexpected, yet it had been so long delayed after many almost authentic rumors had heralded its coming that the operators had almost lost hope.

Another interesting feature of this latest ruling is that the administration authorizes an additional increase of 5 mills per ton to cover the cost of pools and other arrangements to facilitate the movement of coal. This fund will be handled by an operators' committee to be named in the near future.

With the continuance of mild weather there has been a slight improvement in the receipts of fuel here lately, but despite this the situation continues most serious and many plants continue to remain closed for the lack of fuel. Even concerns working on war material have been idle, and it is these concerns which are receiving the earnest attention of the fuel committee. Owing to the improvement in the anthracite trade, the drain from that source has ceased and no soft coal has been commandeered for family use this past week.

Lighting and power plants in adjacent towns have been sorely pressed for coal and have only been kept going by the commission taking coal in transit consigned to less important industries. In many of the suburban towns the lighting has been curtailed as much as 50 per cent. on this account. The chief trouble remains one of motive power and many loaded cars are reported to have been on sidings for weeks on this account.

The announcement by the National Fuel Administration of the abrogation of the commission allowed brokerage houses, effective Apr. 1, has caused intense discussion. While Dr. Garfield has stated that he believes the broker is necessary, he feels that because of the abuses that have crept in whereby a very large percentage of all coal has been sold with the brokerage charged, it has become necessary to find a remedy.

As indicated last week, there is just the least little contract activity, but this is not expected to develop to any great extent until conditions become more favorable. The Government is encouraging the closing of contracts, but even this is not sufficient to induce a general closing of this kind of business.

Lately there has been a cleaning up of the coal at the piers, following a period when much coal had been loaded into bunkers by priority orders. However, there is much coal on the way, and as soon as the congestion is relieved there will be a heavy tonnage of coal going forward. The new regulations as to declarations by shipmasters as to the tonnage taken and used is meeting general approval and working out satisfactorily. It is thought by some that the taking control of foreign trade by the Government will have a tendency to curtail the bunkering, depending upon the ports from which the commandeered ships will sail.

The receipts of soft coal here are also likely to be affected earlier than usual by the expected advance opening of the Lake trade, owing to the prospects of an early clearing of the Lakes of ice.

#### BALTIMORE

**Fuel supplies are still far short of requirements. Confiscations of coal almost at destination cause confusion. Plants traveling from hand to mouth.**

**Bituminous**—In the midst of other worries over the drastic changes planned for their business by the Government after Apr. 1, the coal men here were still being deluged with demands for industrial coal. Only a few of the plants can be satisfied to the degree they demand. Under requests from the fuel administrator the jobbers have worked heroically to distribute the coal in their grasp to the most urgent cases. Plants having Government work were among those still short of coal. The milder weather prevented additional diversions of soft coal from industrial to domestic use, but this was a mere touch of aid after all, and colder days between increased the domestic call from time to time. The mining sections are still complaining that they can not get the coal cars needed to move the production they otherwise could put out. The railroad congestion continues marked, and few mines are working at capacity. Most of the industries here have given up hope of getting a sufficient supply of fuel for some time to come, as they are convinced that the railroad situation is to blame and is impossible of early remedy.

**Anthracite**—The hard coal dealers have received a little better supply recently, but it has been insufficient to meet even emergency calls and these have in many cases been satisfied temporarily with bituminous delivery. Dealers are complaining that they never know when they are to get coal, as after being notified of a car or so on the road for their account they find it has been seized by some fuel administrator and diverted to other uses. The result is that dealers for the most part have stopped

promising customers coal. Many of them have cut off their home telephones to prevent being aroused even in their slumbers by insistent customers. And all this trouble and worry for a business that is sadly out in profits because coal can not be had to sell when everybody wants to buy.

### Lake Markets

#### PITTSBURGH

**Zone distribution plan being perfected. Heavier receipts of coal, with slightly improved supply of empties at mines. River coal movement largely resumed.**

Some progress has been made in the adoption of plans for putting the zone system into effect, as regards the Pittsburgh district. R. W. Gardiner, distributor for the zone, has had to spend considerable time in Washington for conferences with the National Administration and the settlement of various questions that arose at the outset.

Tuesday of this week completed a full fortnight of favorable railroad weather in the central west. The railroads are believed to have made good use of the time in clearing congestion at various points, but the practical results of the movement have been in freight that was congested en route reaching destination, rather than in empty cars being furnished in larger numbers to shippers. This is expected to follow in due course, but thus far the improvement in car supply has been only a very moderate one.

Much of the ice in the Allegheny River ran out last week, filling the Ohio River, while the Monongahela was clear. Mills in Pittsburgh received considerable river coal last week and this week it is possible to ship to mills on the Ohio as well. Only the four lower pools of the Monongahela are open. The local fuel situation is now a comfortable one, but rail points beyond are still suffering somewhat. The movement of byproduct coal has been improving steadily and the byproduct coke ovens are now nearly fully supplied.

Free coal has not yet appeared in the open market in any volume. The market remains quotable at the set prices: Slack, \$2.20; mine-run, \$2.45; screened, \$2.70, per net ton at mine, Pittsburgh district, with 15c. permitted to be added in the case of sales by jobbers to consumers.

#### BUFFALO

**Bituminous plenty, but still hard to get. A better state of things looked for if the crippled cars are fixed up. Enough coal mined. Anthracite coming slowly.**

**Bituminous**—The supply is better, though the motive power of the railroads is so deficient that cars stranded at junctions and way stations are slow to reach destination. With prompt delivery there would be a supply sufficient to meet every need. As it is, the reports of congestion at many points continue, not only in the near-by Canadian yards, but on this side of the line. The move to repair the crippled cars will do much toward easing up the situation in time.

The recent thaw went a little too far, but it did no damage in this territory. The return of cold weather after ten mild days has probably shut out the later spring floods, besides putting the railroads in a better physical condition. Jobbers of bituminous are afraid that the zoning system, if it ever gets into operation, will substitute the government official for them, and that they will have to whistle for business; but that is conjecture, for no move has been made yet to set up that system here. Factories are uneasy yet, but they are not doing badly.

As time goes on it becomes more and more difficult to quote a bituminous price. The new order increasing the price of coal produced in thin-veined sections of Pennsylvania 15c. a ton now makes it necessary to add that amount to the following table, all per net ton, f.o.b. Buffalo, where it applies:

	Slack	Lump
Pittsburgh.....	\$3.75	\$4.25
Bessemer.....	3.70	4.20
Allegheny Valley.....	3.60	4.10

**Anthracite**—The city distributors complain that with the coming of the mild weather the mines have cut down the supply, apparently sending the surplus eastward, so that the situation is not so much improved here as it should be. Consumption has dropped off more than half. Colder



weather has returned, but nobody looks now for anything like the low temperatures of the late cold spell.

The demand of many anthracite consumers for next winter's coal sets the shippers to studying the possibilities of a year hence. One shipper advocates no reduction in price this spring and the making of an extra effort to supply the outlying districts before winter, so that the sections near the mines can be supplied readily and at least expense to the roads. If the price should be lowered these near-by points would complain that they were deprived of the privilege of buying at the reduction.

Neighboring towns appear to be as short of anthracite as ever, though it is impossible to make sure. Many consumers do not scruple to say the coal is entirely out even when the shippers contradict the reports. Within the last few days the supply has been more general and the consumption has gone down fast, especially as low "war fires" are resorted to during work hours by some households.

#### DETROIT

Continued moderate temperatures ease coal situation and aid in lessening freight congestion. Coal pool considers dissolution.

**Bituminous**—Noticeable relaxation of tension has taken place in Detroit within the last week, owing to continuance of moderate temperature. The improvement in weather conditions has aided the coal situation locally, not only by diminishing pressure of demand from household consumers but by facilitating partial clearing away of freight congestion on tracks south and southeast of Toledo, permitting freer movement of coal from the mines.

Detroit consumers, however, are not yet "out of the woods." Though somewhat increased in volume, the quantity of coal coming into the city is still below consumption requirements and the situation continues to be one of a hand to mouth supply both as regards consumers of steam coal and users of domestic stock.

**Anthracite**—Supplies of anthracite are still insufficient for current needs. Shipments are reaching the city in small volume, and the coal is more than offset by unfilled pending orders before it is unloaded. Few of the retail yards have any stock and are dependent on inbound shipments to meet needs of their customers, many of whom are still obliged to do the best they can with bituminous coal in heating plants designed for use of anthracite.

Efforts to increase the available fuel supply by bringing wood into the city have not been highly successful. With cost of freight and delivery added, consumers in some instances are asked to pay \$18 to \$20 for a cord of 128 cu. ft., or \$6.50 to \$7 for 16-in. wood, equal to one-third of a cord.

Dissolution of the Detroit terminal pool association is under consideration. The organization arouses complaint of some retailers, who assert its operation delays delivery of their consignments. Complaint is made also by some of the steam coal users, on the ground that coal of superior quality consigned to them is diverted to other consumers and an inferior grade of stock substituted. The local fuel administration indorses the pool.

#### COLUMBUS

A better supply for both domestic and steam users is now reported from all parts of the state. Warmer weather had aided transportation.

The coal trade in Ohio has been in much better shape during the past week owing to warmer weather, which has both aided transportation and reduced the supply necessary for domestic consumption.

Domestic trade is still one of the important features of the industry. Retail stocks are better but dealers are still compelled to apportion their available supply to various householders. In other words, none of the consumers is allowed all he wants in case his order is for more than three or four tons. Investigations are made by the county committee when large orders are placed with dealers. As a result of this method hoarding is out of the question. Retail prices are unchanged from the previous week. There is a strong demand for Pocahontas and a little is coming in. The same is true of West Virginia splints. Anthracite is quite scarce.

Steam business is also active to the extreme. Manufacturing plants which were compelled to suspend because of lack of fuel are now being operated. Public utilities have been able to accumulate a small surplus and there is no immediate danger of suspension. With the countermanding of the fuelless Mondays by Administrator Garfield, general industry is now resumed.

Schools which were closed in many sections are in session and there is little to show that the fuel shortage several weeks ago was acute.

Production has been increased largely during the past week. This is especially true of the Hocking Valley and Pomeroy Bend fields. In both fields the car supply was from 80 to 90 per cent. High waters incidental to the breaking up of the snow and ice caused several mines to suspend operations. Floods also interfered with operations in the Pomeroy Bend field. On the whole, the output has been about 85 per cent. of normal with the exception of eastern Ohio, where it was about 65 per cent.

Prices on short tons f.o.b. mines are as follows:

	Hock- ing	Pom- eroy	Eastern Ohio
Sized grades.....	\$2.70	\$3.05	\$2.70
Mine-run.....	2.45	2.70	2.45
Screenings.....	2.20	2.45	2.20

#### LOUISVILLE

Weather improvement, coupled with great improvement in transportation facilities and a slightly better supply of labor, has resulted in quicker movement of coal. Retail demand somewhat lighter, and dealers are rapidly catching up with their orders, now being able to make immediate delivery.

Due to clear streets and the letup in the demand for coal, retailers are now catching up on deliveries and are enabled to take orders for immediate delivery. Deliveries have been greatly simplified, and as a result the Fuel Administration on Feb. 16 reduced the 50c. additional delivery charge which was allowed the retailers during the period of snow and ice. This will leave the gross margin of profit at \$1.95 a ton, bringing retail prices in Louisville down to \$5.43 for western Kentucky mine-run, and \$5.94 for Jellico mine-run. The new range of prices on anthracite is: Stove, \$11.06; chestnut, \$11.15; egg, \$10.80, delivered.

A considerable quantity of western Kentucky mine-run is now moving into Louisville, most of this coal being from Vein No. 9. The retail demand has been checked by warmer weather, but there is a fair wholesale demand. The reduction in retail prices is expected to stimulate retail deliveries during the week. The mines in western Kentucky are managing to run fairly well, as the supply of cars is much better and transportation has shown big improvement on the lines of the Louisville & Nashville and Illinois Central, the two big coal carriers.

In the eastern Kentucky fields an improvement has been seen since the flood waters went down. Labor is in better supply again, while the car supply is better and transportation has improved with the rebuilding of washed-out tracks, trams and railroads. However, the eastern Kentucky mines are not getting more than a three to four day supply of cars each week, and this is holding back production considerably. The Harlan fields have been producing a considerable quantity of coal that has been moving to the South Atlantic seaboard for export to Europe through Jacksonville and Savannah, and for coaling vessels. The Harlan Coal Co. has been especially active in obtaining this business, which has been made possible through the movement to utilize Southern ports to a greater extent than formerly, and which has been featured by the work of Fairfax Harrison, of the Southern Railroad.

#### BIRMINGHAM

Domestic stocks in local yards much better than last period, and receipts improving. Steam demand continues strenuous, with little free coal to be had. Labor disturbances hindering production.

During the past week all local retail yards have received sufficient coal to take care of orders in hand and accumulate small stocks to meet future requirements, an inventory taken by the fuel board at the close of the week showing 4218 tons on hand as against 2500 tons Feb. 1, with about 2500 tons in transit. No severe weather conditions have prevailed for several weeks, and it appears that the domestic coal crisis has passed for this season.

Coal men report little change in steam trade channels. There is a steady and strong demand for far more coal than can be furnished from the district under present operating conditions, and essential industries and public utilities are priority consignees, other users taking the residue of the supply.

Coal production is suffering to some extent by the perturbed conditions following the placing in effect of the Garfield agree-

ment, which has been adopted by all operators in the district. However, misunderstandings as to the proper interpretation of certain of its provisions have developed and the miners have gone out on strike at several collieries in the district, and it is not unlikely that the trouble will assume more serious proportions. Operators aver that they are complying strictly with the letter and the spirit of the agreement.

### Coke

#### CONNELLSVILLE

Car supplies increasing only slowly. Reduction of congestion produces heavy receipts at many blast furnaces.

Car supplies on the Monongahela R.R. last week averaged about 41 per cent. of ratings, starting the week with 70 per cent. and ending with 30 per cent. The P. & L. E. had larger supplies, approaching 100 per cent., but this did not help a great deal. Supplies on the Pennsylvania continued light.

Receipts of coke have made a different showing altogether. When favorable railroad weather appeared Feb. 6, a fortnight ago, the railroads applied their greatest effort to relieving congestion at the various points, this being of loaded cars, not empties, and the result was heavy receipt of coke by the majority of blast furnaces, coke that in many cases had been en route for several weeks. A number of furnaces received much more coke than currently needed, and more than could be unloaded and stocked. There was a sharp increase in blast furnace operations, many furnaces that were banked being able to resume, while others that were running slow increased the blast to normal.

No free coke is yet to be found in the open market, although occasional sales are made as an accommodation. The market remains quotable at the set prices: Furnace, \$6; 72-hour selected foundry, \$7; crushed, over 1-in., \$7.30, per net ton at ovens.

The Connellsville "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Feb. 9 at 224,145 tons, an increase of 9487 tons, and shipments at 275,907 tons, an increase of 47,368 tons. The excess of shipments over production in the later week did not represent the taking up of stock coke, but the weighing of coke that had been loaded previously, but on account of congestion did not reach the railroad scales.

**Buffalo**—As a smelting proposition the coke supply keeps up well, though consumers are obliged to look closely to its movement. These consumers are so often connected with the supply of munitions that they get the preference when there is any to be given. Manufacturers of gas and other by-product coke are no more able to keep a supply on hand than can the sellers of coal, for if the consumers have no regular way of using it they will mix it with their coal. Therefore the market is always stiff and the seller unable to control either stock or prices.

**Birmingham**—The local coke market continues to evince great strength and inquiries are largely in excess of the supply available. The first export order of any magnitude reported for some time calls for 3000 tons for shipment to Carizal, Chili, through Pensacola, the entire lot to move within the next few weeks. This coke goes to smelting interests in that country. Coke is moving much easier now than for some months past, the securing of equipment being less difficult and unnecessary restrictions as to destination have been removed. The output is not what it should be, and capacity production is not being obtained.

### Middle Western

#### GENERAL REVIEW

Domestic market relieved; industries still very short.

The domestic trade has been greatly relieved by the warm weather that has prevailed in the Middle West for the past several days. While there has been but little excessive production over the former week, consumption has been so reduced that it has been possible to obtain enough coal to keep people warm and get a little tonnage in the dealers' bins from the coal arriving.

Railroads are still short of equipment, the supply at no time for the week past in any mining section having reached 65

per cent. Some operations report that they have not received in excess of a 30 per cent. supply during the week just past. In Williamson, Franklin and Saline Counties the car supply has ranged from 40 to 55 per cent. In Indiana this percentage has been considerably better, because of the confining of the state's production to and within the borders of Indiana, which gives the railroads a shorter haul and permits the prompt return to the mines of cars after they are released. The Ziegler mine, located in Franklin County, has resumed operation, although the tonnage is much reduced. It is thought that little time will be required to boost the tonnage back to where it was before the explosion.

#### CHICAGO

**Snowstorm last Friday night and Saturday increases demand and delays transportation.**

Operators, dealers and industrial firms had about reached the conclusion that the crisis was over, when Chicago was again visited by a heavy snowstorm, which continued for 24 hours, turning what was hoped to be a brighter situation into another dangerous market.

One of the mistakes of the Fuel Administration is the continued insistence of the operators to apply every pound of coal possible to the domestic trade, temporarily disregarding the other classes of coal users. This has had the effect of putting into route on various railroads a large volume of prepared coal for dealers, to the neglect of steam plants. If this situation is not remedied immediately, many plants will have to suspend operation. Had trade relationship not been disorganized by the interference of local and state fuel administrators, all classes of trade would have been provided for in turn, with little or no hardship.

Coal from the Eastern fields is still scarce in this market. Some coal that was started from West Virginia two weeks ago arrived in Chicago the latter part of this week, but the larger part of the shipment encountered delays in transit. It will no doubt reach here some time in March, therefore the market is still almost without Eastern bituminous and short of anthracite.

Quotations in the Chicago market are as follows, per net ton f.o.b. cars at mines:

	Williamson and Franklin	Saline and Harrisburg
Steam lump.....	\$2.65@2.80	\$2.65@2.80
Domestic lump.....	2.65@2.80	2.65@2.80
Egg or furnace.....	2.65@2.80	2.65@2.80
Small egg or nut.....	2.65@2.80	2.65@2.80
Stove.....	2.65@2.80	2.65@2.80
Chestnut.....	2.65@2.80	2.65@2.80
Pea.....	2.65@2.80	2.65@2.80
Washed egg.....	2.65@2.80	2.65@2.80
Washed stove.....	2.65@2.80	2.65@2.80
Washed nut.....	2.65@2.80	2.65@2.80
Mine-run.....	2.40@2.55	2.40@2.55
Screenings.....	2.15@2.30	2.15@2.30
Washed slack.....	2.15@2.30	2.15@2.30

	Clinton and Sullivan	Knox and Greene	Eastern Kentucky
Dom. lump.....	\$2.65@2.80	\$2.65@2.80	\$3.10@3.25
Steam lump.....	2.65@2.80	2.65@2.80	3.10@3.25
Egg.....	2.65@2.80	2.65@2.80	3.10@3.25
Small egg or nut.....	2.65@2.80	2.65@2.80	3.10@3.25
Mine-run.....	2.40@2.55	2.40@2.55	2.85@3.00
Screenings.....	2.15@2.30	2.15@2.30	2.60@2.75

#### MILWAUKEE

**Warmer weather relieves coal situation at interior points in Wisconsin. Illinois holding back coal from Milwaukee and other places. No new price edicts.**

Warmer weather has brought about a let-up in the clamor for coal, and the incidental improvement in the railway situation has meant relief for cities and villages in the interior which were suffering a serious shortage of fuel. Some anthracite has been received by rail and additional consignments are expected if there is no relapse in the favorable weather conditions. Illinois coal seems hard to get, and complaint has been made to State Fuel Administrator Fitzgerald that it is being withheld from the state by shippers at the mines since the order restraining the seizure of coal on track bound for Wisconsin. The matter is being investigated. Milwaukee uses thousands of tons of Illinois coal and the southern part of the state is practically dependent upon that source for fuel.

On Feb. 1, Lake Michigan docks held 98,632 tons of hard coal and 747,769 tons of soft. Of these amounts Milwaukee held

82,933 tons of the former and 515,104 tons of the latter. Since that date, however, the draft upon fuel stocks has been heavy, particularly on anthracite coal, which was pronounced exhausted by dealers a week since. There is still some on hand, however, but the small sizes are scarce. Dealers are now holding anthracite for consumers who are positively unable to burn soft coal.

#### ST. LOUIS

**Mild weather has eased general conditions. Transportation improved and car supply better, with increased tonnage from all local fields. Domestic demand easy and more ample needs for steam in evidence. Country sections continue short.**

A more normal condition is prevalent here in local fuels than has existed for many months past, circumstances considered. The weather has had more to do with this than all other factors combined. With an easing up in domestic demand, steam business was in line for more consideration, especially plants far down on the priority list.

Steam conditions have improved, and there is a gradual accumulation of storage in some plants, in anticipation of adverse conditions later. The country sections are not so fortunate, except in isolated cases; but there is no acute need except in southeast Missouri and eastern Arkansas, where the high water is threatening railroads and which sections have been short of coal all winter, more so than other southwestern points.

Railroads continue to draw heavily from all fields and do not seem to be able to get any great surplus ahead.

In the Carterville field of Williamson and Franklin Counties somewhat better working conditions continue to show improvement in tonnage. Car supply temporarily is better, and yet the domestic tonnage is light. Rail and Government orders seem to continue heavy and very little of this coal is coming into the west of the river region south of Iowa.

Similar conditions prevail in the DuQuoin field, but car supply here on the Illinois Central fails to show the improvement that is evident on other lines. The movement is also bad.

Mt. Olive field is one that does not change much. From the early part of the season

	Fulton and Peoria	Springfield	Carterville	Grundy, LaSalle, Bureau and Will
Steam lump.....	\$3.00@3.15	\$2.65@2.80	\$2.65@2.80	\$3.35@3.50
Domestic lump.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Egg or furnace.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Small egg or nut.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Stove.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Chestnut.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Pea.....	3.00@3.15	2.65@2.80	2.65@2.80	3.35@3.50
Washed egg.....	2.65@2.80	2.65@2.80	2.65@2.80	3.35@3.50
Washed stove.....	2.65@2.80	2.65@2.80	2.65@2.80	3.35@3.50
Washed nut.....	2.65@2.80	2.65@2.80	2.65@2.80	3.35@3.50
Mine-run.....	2.75@2.90	2.40@2.55	2.40@2.55	3.10@3.25
Screenings.....	2.50@2.65	2.15@2.30	2.15@2.30	2.85@3.00
Washed slack.....	2.15@2.30	2.15@2.30	2.15@2.30	2.85@3.00

	Clinton and Sullivan	Knox and Greene	Eastern Kentucky	Pocah. and W. Va.	Smokeless Penna.	Hocking	West Va. Splint
Dom. lump..	\$2.65@2.80	\$2.65@2.80	\$3.10@3.25	\$2.60@2.75	\$2.60@2.75	\$3.05@3.20	\$2.85@3.00
Steam lump..	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Egg.....	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Small egg or nut.....	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Mine-run.....	2.40@2.55	2.40@2.55	2.85@3.00	2.45@2.60	2.45@2.60	2.70@2.85	2.60@2.75
Screenings.....	2.15@2.30	2.15@2.30	2.60@2.75	2.10@2.25	2.10@2.25	2.55@2.70	2.35@2.50

it has been much the same. Railroad tonnage is heavy, car supply not good, but the St. Louis market gets its share, if not more, from the field; much better than from others in comparison with prewar figures. The short line roads show exceptional service in quick deliveries.

The Standard field is the uncertain one—sometimes with an encouraging future but generally the reverse. There has been an increased tonnage here this week that has helped the local situation wonderfully. Car supply while not good is much better on most roads than for some time past. Even on the Illinois Central there is some slight improvement, but on this road it is motive power that is felt worse.

Some anthracite continues to move in, about 1000 tons or a little better the past week. No smokeless or Arkansas to mention.

The entire trade here is upset by the Garfield order, effective Apr. 1, abolishing the jobbers' margin. This is a jobbers' territory, and both steam and domestic trade is in danger of a shortage resulting from the lack of distributing knowledge, which is in possession of the jobbers only.

The prices for St. Louis market per net ton f.o.b. mine are:

	Williamson and Franklin County	Mt. Olive and Staunton	Standard
6-in. lump.....	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80
3x6-in. egg.....	2.65@2.80	2.65@2.80	2.65@2.80
2x3-in. nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 2 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 3 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 4 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 5 nut.....	2.15@2.30	2.15@2.30	2.15@2.30
2-in. scrags.....	2.15@2.30	2.15@2.30	2.15@2.30
2-in. lump.....	2.65@2.80	2.65@2.80	2.65@2.80
3-in. lump.....	2.65@2.80	2.65@2.80	2.65@2.80
Steam egg.....	2.40@2.55	2.40@2.55	2.40@2.55
Mine-run.....	2.40@2.55	2.40@2.55	2.40@2.55

Washed:

No. 1.....	\$2.65@2.80	\$2.65@2.80
No. 2.....	2.65@2.80	2.65@2.80
No. 3.....	2.65@2.80	2.65@2.80
No. 4.....	2.65@2.80	2.65@2.80
No. 5.....	2.15@2.30	2.15@2.30

Williamson & Franklin Co. rate is...87c.  
Other fields .....72c.

## Foreign Markets

#### GREAT BRITAIN

Reported by Hull, Blyth & Co., of London and Cardiff.

Jan. 17—Coal—The market continues dull. There is still plenty of free coal, exporters being unable to take advantage of the situation owing to continued scarcity of tonnage.

	New Regulation Prices
Best Welsh steam coal.....	\$8.62
Best seconds.....	8.27
Seconds.....	8.08
Best dry coal.....	7.89
Best Monmouthshires.....	7.89
Seconds.....	7.65
Best Cardiff smalls.....	6.19
Cargo smalls.....	5.47

The prices for Cardiff Coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

**Freights**—The tonnage situation remains unaltered.

Gibraltar.....	\$24.30	Port Said.....	\$48.60
Marseilles.....	21.75	Las Palmas.....	20.04
Genoa.....	24.60	St. Vincent.....	20.65
Alexandria.....	42.60	River Plate.....	29.16
Naples.....	23.87		

## Ocean Shipping

#### OCEAN FREIGHTS

Tonnage is becoming more and more scarce each day and chartering for export coal more and more difficult, but notwithstanding this a few additional steamers have been chartered for coals to Cuban and West Indian ports. A few additional sailing vessels have also been chartered for South American coals at the Chartering Committee's maximum rates. Freight rates, by steamer, are as follows:

	Feb. 11
<b>South America</b>	
Santos.....	19.00
Rio de Janeiro.....	19.00
Chile (good port).....	16.50 about
<b>West Indies:</b>	
Havana.....	7.50 about
Cardenas or Sagua.....	9.00@ 9.50
Cienfuegos.....	9.50 about
Port of Spain, Trinidad.....	12.00 about
St. Lucia.....	12.00 about
St. Thomas.....	10.50 about
Barbados.....	12.00 about
Kingston.....	9.25@ 9.50
Curacao.....	10.00@ 10.25
Santiago.....	9.50 about
Guantanamo.....	9.50 about
Bermuda.....	9.00@ 9.50
<b>Mexico:</b>	
Verz Cruz.....	10.00@ 10.50
Tampico.....	10.00@ 10.50

<sup>1</sup> Net bid. <sup>2</sup> And p. c.  
W. W. Battie & Co.'s Coal trade Freight Report.

The Chartering Committee's maximum sail rates are to Pernambuco or Bahia \$18.50 net, and to Para \$15.50 net. To the other ports the rates are still \$19.50 net to Rio or Santos \$18.50 net to Montevideo, Buenos Ayres or La Plata. Gross rates to all of the above destinations are \$1.50 over the net rates.